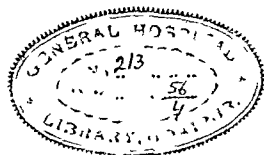


MINOR MALADIES AND THEIR TREATMENT



MINOR MALADIES

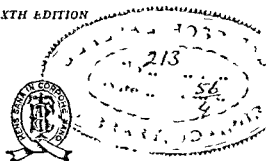
AND

THEIR TREATMENT

BY

LEONARD WILLIAMS, M D.

SIXTH EDITION



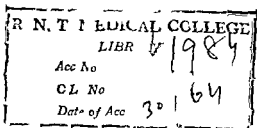
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PREFACE TO THE SIXTH EDITION

INASMUCH as the motive and scope of this book are fully explained in the prefaces to the first and fourth editions, it is unnecessary to do more than point out that the present volume embodies some very decided changes and is now once again thoroughly up to date. These have seemed to be called for by the alteration in the trend of medical thought which has recently taken place. For instance, the chapter on Goutiness has been replaced by one entitled Salient Symptoms, and the chapter on Dyspepsia has been largely rewritten and expanded. It is unnecessary to enumerate these changes, because they represent a change of atmosphere rather than of detail, but I would like to call attention to the fact that I have handed over to my learned and progressive friend, Dr Ivo Geikie Cobb, the whole responsibility for the last chapter. This is because it deals with the drug side of therapeutics, a sphere in which I can no longer claim to be in the movement. My thanks are due to Dr George Cathcart for many helpful suggestions, and to Mrs Linda Forster for her kindness in correcting the proofs.

LONDON,
January, 1933

PREFACE TO FOURTH EDITION

ALL medical works are egotistical, either furtively or frankly. If the matter is not coloured by the author's experience, if it be not presented in the form in which it emerges from the mill of his own brain, the result is a compilation which, though it may have some value in classifying facts, must nevertheless always fail in the more important direction of suggesting ideas. Orthodoxy is an easy comforting thing, but it is very confining. Heterodoxy, which in medicine is synonymous with progress, is a difficult and dangerous thing, but it is very interesting, often, it is even amusing. This book is entirely egotistical and it is in many respects heterodox. It was first published in 1906, in each succeeding edition very considerable alterations have been introduced, the present one embodies changes greater in number and more considerable in importance than any of the others. The section on Constipation has been entirely rewritten, the chapter on Change of Air has disappeared, to be replaced by one on Minor Glandular Insufficiencies, and a small chapter on Old Age has been added.

When I was first qualified, I went into general practice. I soon found that though moderately well equipped in the diagnosis and treatment of diseases which I seldom encountered, I was disconcertingly ignorant in those matters about which I was most frequently consulted. Pneumonia I knew, and Rheumatic Fever, and Typhoid, I was so well acquainted with Phthisis that I confidently recognized it in every trivial cough, and, so well versed was I in heart murmurs that I was prepared to discover them and treat them—with a combination of digitalis and words of serious warning—even when they had no real significance. With knowledge concerning *Tabes*, *Tumours*, and *Trematodes* I was full to overflowing, but I soon realized that I knew very little about a common Cold, less about ordinary Indigestion, and nothing at all about the rheumatic conditions. My knowledge of the subject of Personal Hygiene consisted in attributing to flannel all kinds of virtues, and to fresh air all manner of vices. In this dilemma I searched for a book which would lighten my darkness, but I found it not. I then determined that if time and circumstance should ever give me the opportunity of writing such a book, those of my juniors who found themselves in the same predicament should not want for such help as I might be able to afford them. The opportunity came about twelve years later when I forsook the drive of a busy general practice for the comparative calm of consulting work.

Such of my experiences as I deemed of value in this connection (many of them were gained by sitting at the feet of elderly practitioners) first materialized in the form of some lectures and demonstrations which I gave at the Medical Graduates' College and Polyclinic in 1904. These were afterwards published, chiefly in the *Clinical Journal* and the *Medical Press and Circular*. When they were being put into book form they were supplemented by matter which had been incorporated in articles which had appeared in *The Lancet*, *The Practitioner*, and other periodicals. In each fresh edition this process of laying under contribution portions of my writings which had appeared elsewhere has been steadily persevered with. I am pleased here to record my appreciation of the facilities afforded me by the editors of these periodicals for this form of plagiarism, and to express my thanks to the proprietors of works of less evanescent character, the Oxford Medical Publications in particular, for allowing me to reproduce here portions of what was written primarily for them.

In rereading the proofs of the matter which has been left practically untouched since it first appeared in print, I have been forced to recognize that much of it is in reality once more in the crucible, not so much in detail as in principle. In therapeutics we often adopt measures merely because we know by experience that they succeed. An explanation

of the *modus operandi* comes later, and the correct explanation often much later still. Many of the subjects which I treated with dogmatism ten years ago have, in the interval, been subjected to fresher and fiercer lights which in the future, may modify our present estimates, and may even change them beyond recognition. To write a medical book, however modest its aims, and to keep your hand conscientiously upon it, is to realize fully the first essential to the dignity and progress of medicine—namely, the ruthless cultivation of the open mind. To the contracting cerebral arteries of the seniors must be attributed the inadequate prestige of the profession in the body politic, it is with the juniors to redress the balance by persisting in a divine discontent with present imperfections, and by pursuing with diligence the kind of heterodoxy which consists in a reasoned receptivity to new ideas. This is not to extol the excited welcome which I have too often seen extended to new therapeutic fashions. Those which are in my mind had no change in outlook to warrant them. It is experience alone which brings discrimination, but it is a safe rule which bids us receive with caution new methods which are not based upon fresh ideas. The substitution of a synthetic drug for a vegetable, in the treatment of a disease whose pathology is obscure, may succeed in the wholly laudable object of giving greater relief from symptoms, but we must not delude ourselves into believing that science

is thereby advanced. And it is, as a rule, precisely those who are most eager to follow new fashions who are most impervious to fresh ideas. It is an easy thing to prescribe a drug, but it is not an easy thing to readjust your outlook. The man who discovers a new drug—like Maclagan and his salicylates—is acclaimed as a deliverer, the man who preaches a new gospel, as Lister, Arbuthnot Lane, or George Gould, is despised by his contemporaries and stoned by his elders.

In so far as this book can pretend to be anything higher than an ephemeral practical aid to every day practice the larger claim would rest on the fact that in successive editions it has endeavoured to reflect the current of thought which is moving opinion among those who are really progressive. The ultimate object of medical science is prevention not cure. The ultimate aim of any curative system is to influence a morbid process while it is still in a stage where skilful interference will do permanent good. Sir James Mackenzie is fond of insisting that our present methods of investigation are not sufficiently directed towards the discovery of disease in its earlier stages, that we are content impotently to contemplate the full blown, whereas we ought to search for buds and tendencies. In this criticism I see much justice, and I believe that the serious study of what are called minor maladies will in this way lead to the prevention or forestalling of many serious diseases. Still more earnestly do I believe

that the study of the whole field of the Internal Secretions will enable us to detect and correct morbid tendencies with a degree of success which has been denied to the older methods. The microbe—the seed—has ruled the immediate past, the future is with the soul the endocrine glands

LEONARD WILLIAMS

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MINOR MALADIES AND THEIR TREATMENT.

CHAPTER I.

COLDS, COUGHS, AND SORE THROATS.

THE inflammatory conditions which affect the upper air-passages are usually attributed to inclement weather, and the elements, such as damp, cold, and chill, of which such weather is composed. This view is no longer tenable. These inflammatory conditions we now know to be due to the same causes as those which produce inflammation in other mucous membranes—namely, irritation and microbic invasion. There is no doubt that these affections are more prevalent during inclement weather, and although we may admit that the inclemency, by lowering the resisting powers, may, in some degree, contribute towards the microbic invasion, it is evident that other and more important factors must also be in operation.

These other factors are provided by the deficient ventilation of houses, public buildings and con-

veyances, which immediately ensues when the weather becomes cold or otherwise disagreeable. Windows and doors, which in summer time are always kept open, are closed in winter, with the result that pathogenic germs are allowed opportunities for exercising their effects which are denied to them in the warmer weather. Moreover, in the summer, people spend much more time out of doors, and are consequently less exposed to the activities of the germs, which, as we know, are more readily killed by sunshine and fresh air than by any other means. Colds, coughs, and associated conditions are due, therefore, not to damp and chill, but to microbic invasion. The surest method of avoiding them is to cultivate efficient ventilation, and the most certain method of encouraging them is to tolerate impurity of atmosphere.

The association of 'chills' with these conditions is very old, and until comparatively recently these 'chills' were regarded as the cause of the malady. Most people now realize that this is not the case. The feelings of chilliness which so often occur at the outset of these complaints are not, as is so often erroneously believed, the cause of the symptoms—they are the primary manifestations of the malady, the sign which proclaims the success of the microbic invasion. The person who 'caught a chill' and subsequently developed a sore throat was, although he failed to realize the fact, already infected when he experienced his chilly sensations. It is necessary to insist upon this view, because the laity cling with

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great pertinacity to the chill theory, with the result that fresh air, instead of being esteemed as a curative and prophylactic agent, is regarded as the deadliest enemy of the human race, and great vigilance is consequently exercised in excluding it by every possible means from houses, public rooms, and public conveyances. Until people become more enlightened, 'colds' and their congeners will continue to afflict them with quite unnecessary frequency.

The commonest of all disorders is the catarrh affecting the naso pharynx, the larynx, or the larger bronchial tubes, which is known as a **COMMON COLD**. For the reasons which have just been considered, the term 'cold,' as applied to this condition, is peculiarly unfortunate, for not only does it lend support to a mistaken view of the cause of the malady, but it obscures what should always be realized in connection with it—namely, that it is infectious. It is a well recognized fact that colds are very liable to pass from one member of a household to another, which means that they are epidemic in character, and, being epidemic, they must necessarily be caused by bacterial infection. This fact supplies us not only with an obvious means of avoiding them, but it points unmistakably to the proper way of treating them. The infection induces inflammatory action, and in ordinary people the inflammation begins in the nose. In those who, from adenoids or nasal obstruction, habitually breathe through their mouths, it may begin lower down in the air passages, but whenever it begins at a site which

can be reached by nasal douching or gargling, it is, if taken in time, an easy matter to abort a cold. This is done by the simple expedient of washing the microbes out of the part with an antiseptic solution, used both as a gargle and a nasal douche.

It is curious to observe how few people know how to use a nasal douche. There are several patterns on the market, all of which have merits, but the one which I prefer, because I am better acquainted with it than with any other, is called the Birmingham Nasal Douche¹. It is employed as follows.

Having filled the douche with the necessary fluid, the index finger is kept on the air inlet and the nozzle placed well inside the nostril. With the head thrown well back and to one side, the operator then raises the finger, and if the point of the nozzle is not too tightly pressed against the mucous membrane, the fluid will flow into the nostril. What becomes of it then depends upon one thing, and one thing only. If the mouth is kept widely open, and the patient goes on breathing, the fluid will flow out of the other nostril, if the mouth is kept closed, the fluid will find its way into the œsophagus, the ear, or the larynx, giving rise to effects which are always disagreeable, sometimes alarming, and, in the case of the ear, occasionally very serious. The instruction to keep the mouth open should therefore, always be dwelt upon. If the fluid does not flow out of the douche at all, the nozzle must be withdrawn slightly.

¹ That sold as Woakes' Irrigator is also very good.

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With regard to the fluid to be used, St Clair Thomson insists upon the importance of the following three points. The solution should be warm—that is, not below 100° Fahr, it should be alkaline by reaction, and should be isotonic with the blood plasma. If it is of lower specific gravity than the plasma, there will be painful exosmosis from the mucous surfaces, if of higher specific gravity, there will be equally painful endosmosis, in extreme cases there is violent though happily transient pain in the occipital region. In either case the patient will complain of disagreeable and occasionally even of agonizing drawing sensations in the nose. Of preparations which fulfil these conditions, the most elegant and agreeable is that which is sold under the name of Glyco Thymoline, whose active principle is a salicylate. It has, however, the demerit of being rather expensive. A good substitute is the following

R	Sodu bicarb	}	℥a gr i℥
	Sodu biborat		
	Sod i benzoat		gr ½
	Eucalyptol		℥℥ ₁₂
	Menthol		gr ½
	Aquam		ad ℥℥

Solve et misce Sig To be used frequently

The following is also agreeable and efficacious:

Hazeline	℥xx.
Borax	gr v
Glycerine	℥v
Water	to ℥℥

Solve et misce To be used as above

These solutions should also be used as gargles, so that the infective material may be flushed as rapidly as possible from all accessible parts of the upper air passages

By no means the least of the merits of this method of dealing with a nasal catarrh is, that should the catarrh be the first stage of an attack of one of the exanthemata, especially measles or whooping cough, we are adopting the measures best calculated to cut short the attack, to provide against the spread of infection, and to prevent the occurrence of the sequelæ to which these diseases owe their gravity. So effectual, indeed, is nasal douching in the treatment of whooping cough, even when delayed until the whoop is established, that to neglect to advise, and even to insist upon it, is in the judgment of many to undertake a grave and an unjustifiable responsibility. An excellent formula for this purpose, which is substantially the same as that which used to be known as Dobell's Solution, is

R	Sodii bicarb	}	℥ā gr xxx.
	Sodii biborat		
	Listerini		℥ss.
	Glycerini		℥vi.
	Aquam		ad ℥i.
M.	Sig To be used frequently		

When the catarrh originates lower down in the air passages—e.g., in the larynx—the local abortive treatment is not so easy of application, and is consequently not always so successful. Oils, such as

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eucalyptus, well vaporized or atomized in a suitable apparatus, and inhaled vigorously and frequently both through mouth and nose, are exceedingly useful. The household remedy of Friar's Balsam (one drachm to the pint of hot water) inhaled from a wide mouthed jug should not be despised. It is capable of much good. There are a great many elegant and relatively inexpensive atomizers and vaporizers on the market which render it an easy matter to bring medicated oils in contact with the upper air passages. Medicated oils put up in collapsible tubes are useful for carrying about. A useful combination is the following

Oil of eucalyptus	℥xx xl
Menthol	gr i ʒi
Liquid paraffin	to ʒii

Dissolve and mix.

Aqueous solutions in the form of sprays may also be used, but they are less efficacious than the oleaginous. The following are useful formulæ

R	Sodu bicarb	}	ʒa gr v
	Sodu biborat		
	Acid carbol lev		℥½
	Glycerini		℥xx.
	Aquam		ad ʒi

Misce. Mitte ʒiv

Sig Spray freely through the nostrils into the throat every four hours, or oftener, using Rogers' No. 1 spray

R	Pot permang	gr i
	Sodu chlorid	gr v
	Aquam	ad ʒi

Solve et misce. Mitte ʒiv

Whether the solution employed be aqueous or oily, the patient must be instructed to draw a sharp, deep breath each time the air bulb of the atomizer is compressed. In this way the medicament will reach the larynx and the larger tubes.

There would be far fewer nasal catarrhs than there now are if people would only apply to their nostrils the same principles of soap and water cleanliness which they habitually apply to other parts of the body. In foggy weather especially, and in dusty weather, and most especially in times of epidemics, the inside of the nostrils should be washed with soap and water at least once a day—twice is better. It is rather an advantage than otherwise if this little operation provokes sneezing. That is Nature's way of flushing out undesirable matter, and lubricating the mucous membrane with antiseptic mucus. The application of soap to the nostrils presents no difficulty to those who shave the upper lip, and with them it should be almost automatic. If the same type of soap and water cleanliness were applied to the throat, the incidence of sore throats would be much diminished.

When microbic invasion is successful, besides the local measures above noticed, it is desirable to increase the powers of resistance to microbic activity—first, by sending the patient to bed, and secondly, by freeing the *primæ viæ*. This is best done by a mild purgative and a hot bath or, better still, a hot wet pack. As I shall have occasion to recommend this simple household expedient in other connections,

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I shall now describe it in detail. All that is required is a mackintosh sheet, two ordinary blankets, a cotton sheet, a hot water bottle, a pail of boiling water, and a wringer, all of which, except the last named, can be obtained in an ordinary household. The wringer can be manufactured at short notice by hemming in enough of the two ends of a towel to allow a walking stick to be passed through each end easily. The mackintosh is placed on the bed, and on top of it, the two blankets fully spread out. The sheet, having been wrung out of the boiling water, is then laid on the upper blanket. The patient is then placed on the sheet, so that his *occipital prominence* is on its upper margin. With the patient's arms raised, the upper corner of the sheet on his right side is carried across and tucked under his left scapula. With his arms by his sides, the opposite corner is brought across and tucked under his right scapula. Each blanket is then carried across in a similar manner, the hot water bottle is placed near the feet, and the free ends of all the coverings are tucked under the heels. In a period varying from twenty to forty minutes perspiration will be found on the forehead, and that is the signal of sufficiency. The temperature taken in the mouth generally shows a rise of 1 or 2 degrees. After a tepid or cold sponging the patient is removed to bed, on which the coverings should not be too heavy. Two or even three of these packs may be given in a week. Patients, especially children, for whom they are useful in many conditions, always enjoy them, and an intelligent nursery nurse

can be taught to administer them quite well. If, in addition to the local symptoms, there should be evidence of constitutional disturbance, such as headache and a slight elevation in temperature, then a single nocturnal dose of opium is invaluable. The form which I prefer is liq opii sedativus, and of this at least 20 drops should be given. In influenza, taken early enough, I regard opium as almost specific, but even in common colds its effect in soothing the inflamed mucous membrane and in calming the irritated nervous system is most helpful. As a general tonic after a cold, nothing in my experience has proved so useful as quinine, and when giving quinine, it is always better to prescribe it in fluid form, and preferably as an effervescing mixture.

R	Quin sulph	gr iiss
	Acid citric	gr x.
	Aquam	ad ʒss

M. Sig. The A mixture

R	Potass bicarb	gr x.
	Ammon carb	gr iiss
	Syr simpl	ʒi
	Aquam	ad ʒi

M. Sig. A tablespoonful of the A mixture to be added to two tablespoonfuls of this mixture and taken during effervescence.

Quinine in powder is not only capricious in its behaviour but as compared to a solution, it is much more liable to upset the stomach. When dissolved in hydrobromic acid, the drug is comparatively tasteless. As a post catarrhal tonic some very ex-

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perienced physicians hold that quinine is inferior to cinchona. Some prefer the Compound Tincture (Зі Зу) others the Liq Extract (Мѣх Зі), I have found Hormonax—which is a medicated sheep's serum—exceedingly useful as a general tonic and restorative. I have heard Metatone well spoken of in the same connection.

When once the inflammatory process is in full swing, the microbic activity is at an end. We can no longer expect any benefit by killing the organisms, it is only their irritative effect upon the air passages that we can hope to influence. And if we wish our interference, in a process which is by nature self-terminating, to be really beneficial, we must not lose sight of the time honoured division of expectorants into soothing and stimulating. If we stimulate the mucosa in the congestive period, the only effect which we can logically expect to produce is that of increasing the patient's sufferings, and, similarly if during the stage of free secretion we soothe the mucosa the only reward for our activities will be a tardy and prolonged convalescence. When, therefore, the complaint is of rawness and a sensation of constriction either in the throat or behind the sternum, when the cough is hard, and accompanied at most by some slight mucus when the skin is harsh and dry and the tongue coated, the only proper treatment consists in soothing or, as they are very properly called, depressing expectorants. A very old combination and a very excellent one is as follows

R	Vin. antimon	}	℥ss ℥x
	Vin ipecac	}	
	Spts æther nitrosi		℥xxx
	Liq ammon acetat		℥ii.
	Syr limonis		℥i
	Mist amygdal.		ad ℥i

M. S g Every four hours or if the distress is great
half the quantity every two hours

This is a time-honoured prescription to whose efficacy in relieving congestion and promoting secretion several generations of practical therapists have borne grateful and willing testimony. There is one counter indication to the use of such a mixture to which it would seem necessary to direct special attention and that is the existence of any valvular disease of the heart in the patient for whom it is proposed to prescribe it. I have known at least one fatal result to ensue from neglect of this very obvious precaution. Ipecacuanha and antimony be it remembered are both very powerful cardiac depressants and if we are careless enough to give them to a patient with an organ which is already labouring under mechanical disadvantages we must not be surprised if by so doing we provide the proverbial last straw in the heart's burden. When a complication of this nature confronts the practitioner he must content himself with relieving the congestion by such means as poultices hot packs and purgatives reserving his drug remedies for the relief of any symptoms which may be caused by the state of the heart. I must not be understood to imply however,

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that such means as those just indicated should be exclusively reserved for cases in which valvular disease is present. On the contrary, a purgative and a hot wet pack are to be regarded as the very best subsidiary means of combating the condition, whether the intention be to abort an attack or to guide the inflammation to a rapid conclusion.

When the congestion is relieved and freedom of the secretion is established, then, and not until then, is the time for those stimulating measures which many people erroneously prescribe at the outset. As a good example of an expectorant mixture of this class, let me recall one which is as time honoured as that which I have just quoted, it is as follows.

R. Ammon. carb	gr v
Tr camph. co	℥xx.
Syr scillæ	℥xxx.
Syr tolu.	℥l.
Inf. senegæ	ad ℥l.
M Sig Every four hours	

It is well to remember that squill upsets the stomach in many cases so that where this organ is weak that ingredient is better omitted.

When the muco purulent exudation is mainly tracheal, such a mixture may fail to give the necessary relief. In such cases cubebs usually acts very promptly. It is the main ingredient in a much advertised remedy. Twenty grains of the powder in a cachet three times a day is a very convenient form for its administration.

In connection with these catarrhal conditions, of which cough is such a prominent symptom, it will be convenient to glance briefly at some of the other **CAUSES OF COUGH**. We will leave out of consideration those coughs for which a cause is found as soon as the chest is examined—such, for example, as those which arise in the lungs and pleura from phthisis, pneumonia, pleurisy—and those which accompany tumours, aneurisms, and other gross cardio vascular changes. Nor need such obvious causes as whooping cough and measles detain us, for it is essentially the coughs which seem to own no relationship which give rise to difficulty. In the presence of such a cough in a child, it is well to remember two potent but frequently overlooked causes: the one is a collection of cerumen in the ear, and the other is nasal or postnasal obstruction. Cerumen is liable to collect in the ears of adults, but in them it more often gives rise to giddiness than to cough, whereas in childhood giddiness is seldom complained of, and cough is common. The removal, by the simple expedient of syringing the ears, of a troublesome cough which has caused anxiety and annoyance to a household for some time, is a proceeding which is highly calculated to increase the reputation of the man who does it and to injure the reputation of him who neglects it. In the presence of a cough of doubtful origin, the wise practitioner should make it a rule to examine the ears, especially if the patient be a child. The extraction of a foreign body has often proved to be the solution of a very troublesome problem of this nature.

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So far as concerns nasal and postnasal obstruction, there can be no doubt that, though the former is often overlooked, the degree and importance of the latter are very generally exaggerated. Where there is any obstruction in the nose itself to the free passage of air, that obstruction should be removed as soon as possible by operative measures. This is also true of gross obstruction caused by adenoids, but it is to be remembered that mild degrees of these vegetations are very rapidly and very effectually removed by pulmonary exercises, and that with the removal of the adenoids the cough vanishes. It is well for a young practitioner to remember that suggestions of the tonsillotome and its congeners do not awaken in private patients the same acquiescent indifference which may be relied upon in those of the hospital class, and that a reputation for a too ready appeal to operative measures is one which it is prudent to avoid. The very simple details of chest exercises or pulmonary gymnastics should, therefore, be mastered in order that they may be explained to parents and intelligent nurses.

A cough, which is generally of a quality peculiarly irritating both to the victim and his audience is sometimes excited by a relaxed and elongated uvula, and such a cause should be suspected if the fits of coughing seem to be provoked by the recumbent posture. A cough of rather a similar quality, harsh, provocative and futile is probably due to granulations at the back of the throat which are most often caused by smoking. The best treatment for these conditions is by means of

Mandla's paint which should be applied at least twice daily. It is composed as follows

R.	Pot iodid	gr xv
	Iod. pur	gr v
	Ol menth p p	℥i.
	Glycerin.	ad ℥i.

In half strength this may be sprayed up the nose

This local treatment should be supplemented by measures directed to the removal of the cause which is very often gouty or rheumatic. A brisk cathartic is always helpful.

When the uvula in addition to being relaxed is also œdematous it should be seized at the point by a pair of forceps drawn into the mouth and freely scarified with a sharp knife. Such a proceeding is very simple, is almost painless, and the relief which it gives is instant and complete. The occurrence of such an œdema however even when it has been successfully dealt with by the above means should never be lightly regarded for although the majority of cases terminate favourably in a short time especially when the underlying cause is discovered and treated in a certain proportion of them the œdema progresses downwards until the glottis is involved. Such a complication according to Sir Felix Semon may be suspected if the ordinary redness of a relaxed throat presents a bluish tinge or if the element of dysphagia is out of proportion to the amount of inflammation present. The patient in such circumstances should be carefully watched and the friends warned of the possible danger. A

mixture containing ℞ of liq ferri perchlor and ℞ of liq hydrarg perchlor to 3 ounces of water should be given, preceded by a brisk cathartic, and preparations be made either for intubation of the larynx or for the performance of tracheotomy on the occurrence of urgent symptoms

A cough which presents distinctive features is that associated with chronic irritation either in the larynx or in the trachea. The irritation often amounts to nothing more serious than a relaxed and slightly catarrhal mucosa, the aftermath of a bronchitis or an attack of influenza. The latter is especially liable to give rise to it, but it may occur independently of any obvious cause, and is then usually the result of anxiety, worry, and overwork. It is more common in smokers, and is aggravated by dull, damp weather. Such a cough may be more or less present throughout the day, but it is, especially in the morning and at night, liable to energetic exacerbations. The amount of matter voided is very small in proportion to the violent efforts which its expulsion seems to entail, and consists mainly of colourless glairy mucus. During the paroxysms the patient's face becomes congested, and so rapid are the expulsive efforts that he is unable to inspire. A climax is often reached by a spasm of the diaphragm, which causes retching or even vomiting.

Having regard to these facts, it is not surprising that such a cough is frequently mistaken for whooping cough, its resemblance to which is further borne out by its obstinacy to ordinary cough mixtures. If it is

remembered that a cough of this kind is essentially a manifestation of debility, there should be no difficulty in affording speedy relief. Perhaps the best remedy of all is a complete holiday in some really bracing climate, such as that of Margate and the other stations on the east coast. This, however, may be out of the question, so that it is well to consider other means.

The most important preliminary step is to induce the patient to give up smoking. Persistence in this habit seriously prolongs the treatment. As a measure for allaying the cough an acid in combination with glycerine is very useful and one of the best acids for the purpose is the acid phosphor dil. of which 25 to 30 minims should be given to the drachm of glycerine in an ounce of water three times a day. To such a mixture the addition of about 2 grains of quinine and 4 minims of tr. nux vom. will be found helpful in relieving the relaxed state of the mucosa, which is the real cause of the trouble. Gargles are of very little service in this condition—they are indeed, quite useless—but Mandl's solution and lozenges are most valuable. That which I have found most effective is the *Krameria* lozenge. It is not very unpleasant and it certainly helps to restore tone to the affected parts. Patients should be warned in connection with this lozenge that it is not meant to be sucked. It should be allowed to remain between the teeth and the cheek, and to dissolve slowly of its own accord otherwise its activities will be expended upon the œsophagus,

and the larynx remain altogether uninfluenced. There is another warning in connection with lozenges of all sorts of which it is well to remind patients, namely, that they should be taken out of the mouth if there is any immediate prospect of sleep, for during sleep, not alone a solution of its ingredients, but the whole lozenge, might easily find its way into the larynx, with disastrous consequences.

If such measures fail to relieve the cough, there need be no hesitation in adding as a temporary expedient, say 10 minims of nepenthe to each dose of the above mixture. Heroin ($\frac{1}{16}$ to $\frac{1}{8}$ grain) is most valuable.

The coughs which arise in association with gastric, hepatic, and intestinal derangements are to some extent characteristic. They are generally loud, short, and frequent, and do not result even in the discharge of mucus, that is to say, they express a reflex and not a direct irritation. Their treatment is necessarily bound up with the discovery and efficient management of the original cause. More often than not this will be found to be chronic constipation, it may turn out to be intestinal worms, inactivity of the liver, gastric dilatation, or some lesion even more serious, the important point to remember being that, apart from aneurism, granular pharynx, and elongated uvula, a cough which is persistent, obtrusive, and futile, generally has its cause not above, but below the diaphragm.

Another kind of cough which is associated with gastric derangements is that which is typically seen in alcoholics. In its main features this cough may

resemble closely that just described as laryngeal and due to debility, indeed, alcoholics very frequently have a huskiness due to relaxed vocal cords, but the existence of the chronic poisoning is generally easy to detect, and its detection not only prevents any misapprehension as to cause, but points unmistakably the right line of treatment—namely, the cleansing fires of a rigid physiologically righteous life

Having mentioned *Influenza* it seems fitting that I should say a word or two in connection with it. It may begin as a minor malady, but it is very apt to become the reverse. If the illness be taken in time, and the patient sent to bed until the temperature and other obtrusive symptoms have subsided, the disease is easily kept within the category of minor conditions, but if it is allowed to obtain a 'hold' of the patient, so as to give dangerous sequelæ an opportunity of developing, then influenza is liable to be one of the deadliest of diseases. I know of no condition in the presence of which I feel less hopeful than a pneumonia which is secondary to influenza—a complication which supervenes most frequently, one might almost say exclusively, in cases where the primary condition has been regarded as a passing matter which should not interfere with the ordinary affairs of life. The necessity for early recognition and prompt treatment of these cases, even when slight, is further emphasized by the fact that when they are allowed to be 'ambulatory' the subsequent depression is always much more pronounced and of

infinitely longer duration than when they are taken in time and suitably treated

It is not that there is, nowadays, any tendency either to overlook influenza or to belittle it when present. The difficulty is, indeed, in exactly the opposite direction, for it is quite certain that many conditions are constantly labelled 'Influenza' which are no more due to the causal bacillus than they are due to the *Bacillus typhosus*. Since about 1890, 'influenza' has become a sort of diagnostic rubbish heap on to which is cast every febrile state which cannot with certainty be referred elsewhere. There is really no reason for this, because the causal bacillus is as characteristic as the Klebs Loeffler or any other whose presence is regarded as distinctive of a certain disease, so that a positive diagnosis of so highly infectious a condition should not be made without the confirmatory evidence which the presence of the bacillus affords. It is often exceedingly difficult to be certain as to the exact nature of a febrile condition at first, or even subsequent, visits, but there is no excuse for seeking to overcome the difficulty by idly attaching a label, which, though it may be satisfying, is both wrong and alarming. It is much better to be frank in such matters, the practitioner who is straightforward always commands more confidence and greater respect than the one who poses as omniscient.

The presence of real influenza may always be suspected from the sudden onset of symptoms with a high temperature. The symptoms may vary in degree and in kind (they are divided into nervous,

respiratory, and gastro intestinal), and their severity is not often great, but when they appear suddenly—so suddenly as to suggest a blow from an unseen hand—then the probability is that they are influenzal in origin. Occasionally the attack is as overwhelming in its severity as it is surprising in its suddenness, so overwhelming as to convert a strong, healthy man into a prostrate mass of aches and pains in less than five minutes. The temperature at the onset is often high, reaching 105° F or over, but it may be quite low, and even, according to some, subnormal from the first. Typical cases in an epidemic are by no means difficult of diagnosis, but atypical cases, especially where they are sporadic should always be referred to the bacteriologist before a positive opinion is given.

If the disease is seen at its onset, the patient ought to be sent to bed at once, and kept there until the temperature has fallen to normal and the attendant discomforts have ceased. There is nothing which hastens this end so much as an initial dose of opium. I was first made acquainted with its merits about the time of the 1890 epidemic by a note in one of the journals by Sir Samuel Wilks who told how, according to his diary, Prince Napoleon had been cured by such a dose, which had been prescribed by Corvisart. Since that time I have appealed to it on many occasions, and if in a sufficiently early stage, never in vain. It is, however, necessary to give a full dose, say 20 to 30 minims, of liq opii sed, if the beneficial effect is to result. This effect shows itself, as a rule,

in a remarkably short space of time, and consists in the disappearance of the pains and the production of deep and refreshing sleep. So much impressed have I been with this line of treatment that I have learned to regard opium almost in the light of a specific against the bacillus of true influenza. That it should relieve the pains and soothe the irritated nervous system is not on general principles surprising, but that it should effect its purpose so rapidly, so completely, and so permanently, points to some action other than the ordinary effect of the drug and is highly suggestive of some specific influence (see p. 52).

When the acute stage is past quinine seems to be the most useful drug. It appears to render the subsequent depression less profound and of shorter duration. In connection with this depression, it is well to remember that it is often intensified by excessive and injudicious feeding. The 'keeping up régime, which is so commonly prescribed during this stage, is regarded by the anxious friends as the height of therapeutic wisdom, but in reality it is quite the reverse. The system becomes overloaded with effete matters, and the poisons have in consequence fewer opportunities for escape. The best thing to do with such a patient is to see that the food is simple and nutritious, containing little, if any, meat, plenty of vitamins, and some alcohol in the form of a well matured wine, and to arrange for a complete holiday at the seaside as soon as possible. The locality chosen must depend, among other things, upon the time of

year and the type of the attack, but bracing climates are as a rule strongly indicated

The next subject to be considered is that of **SOBE THEROAT** There are, of course, several kinds of sore throat, and I wish it could be said that the degree to which specialism in this department has attained had been productive of any corresponding degree of precise knowledge as to their varieties and causation To the plain man, where it does not mean scarlet fever or some similar condition, in which accompanying symptoms are present to clear the issue, sore throat spells tonsillitis, and with regard to a tonsillitis, the first point to decide is whether or not it is diphtherial In these days of bacteriological investigation and antitoxin treatment, the question may not seem to present the same importance as it did in the days when we were still without such assistance But bacteriological investigation takes time, and reliable antitoxin is not always easy to procure, so that it is well to be prepared with a plan of campaign which leaves such luxuries out of account.

Speaking as one who has had more than his fair share of experience in diphtheria, I may say that I know of no condition which, in its slighter forms, at any rate, is more difficult of diagnosis It is, even now, no uncommon thing for a sore throat which has been dismissed as a passing matter tardily to vindicate its true character by a legacy of alarming and even fatal paralysis. Apart altogether, there

fore, from the question of preventing the spread of infection—a question whose importance and urgency cannot be too strongly insisted upon—it is essential that we should not, if we can help it, fail to recognise a case of diphtheria when we see it. Now, there are two aids to diagnosis which, partly, perhaps on account of the luxury of the bacteriological short-cut, seem to be falling into increasing disuse, of which, for this reason and as being easy of performance and capable of yielding information of the utmost value, it is well that we should remind ourselves. The one is the state of the knee jerks, the other the state of the urine. It is generally known, perhaps, that in diphtheria the knee jerks are liable to disappear, and that albumin is often present in the urine. But it does not seem to be sufficiently realized that these phenomena when they do occur, occur early, sometimes very early in the disease, and that it is therefore our bounden duty to look for them in every case of sore throat, however slight which presents itself to our notice.

Now, let us suppose that we have detected such a case and that a considerable amount of precious time must necessarily elapse before any reliable antitoxin can be obtained. What are we to do? Taking the ordinary precautions as to isolation etc., for granted, the first thing to do is to give the patient a mixture containing biniodide of mercury. Before the days of antitoxin I had learned to have so much confidence in this drug that I came to regard the occurrence

of a case of diphtheria with something very nearly approaching to equanimity. The biniodide is insoluble in water, though freely soluble in the presence of an excess of iodide of potassium. The following is a convenient way of prescribing it.

R	Hydrarg perchlor	gr 1
	Potass iodid	gr xxx
	Glycerini	ʒil
	Aquam	ad ʒviil

In such a mixture a double decomposition takes place between the two salts and the amount of resulting biniodide is rather less than the original amount of perchloride so that each ounce contains rather less than $\frac{1}{2}$ grain. The ordinary tablespoonful is therefore a perfectly safe dose for an adult and if its effects are carefully watched, it may be frequently repeated. The glycerine is added with the view of causing the mixture to adhere to some extent to the fauces, and of thus securing a local as well as a constitutional effect. The biniodide of mercury as a bactericide is four times as powerful as the perchloride and it has no tendency, as the perchloride has to throw down an inert albuminate when brought into contact with the tissues. Whether for these reasons, or because it is especially inimical to the Klebs Loeffler bacillus, in the same way that nitrate of silver is especially inimical to the gonococcus, there can be no doubt that, antitoxin apart HgI_2 is a far more effective weapon in combating diphtheria.

than any drug, inhalation, or pigment which has ever been introduced

In severe cases of diphtheria whether or not antitoxin be available, an early appeal should be made to strychnine, preferably by subcutaneous injection. This drug is believed to present a direct physiological antidote to the action of the toxins, by stimulating the very centres which the toxins tend to depress. Now, in a bad case, the toxins are being manufactured in large quantities, so that to be efficacious the drug must be vigorously pushed. The ordinary dose of $\frac{1}{16}$ to $\frac{1}{8}$ grain is quite useless even in the case of children. If the effects are watched, it will be found perfectly safe to give $\frac{1}{16}$ or $\frac{1}{8}$ grain four times a day for three or four days, and those who have not tried it will be surprised to find how well it is tolerated. Strychnine is also infinitely the best drug for the treatment of diphtheritic paralysis. It is then best given by the mouth in combination with liq ferri perchlor (*vide* formula on p. 81)

When we come to consider the forms of tonsillitis other than diphtheritic, I have to confess to an absence of settled convictions. That tonsillitis¹ may be and often is, a manifestation of true articular rheumatism, giving rise to endocarditis and causing valvular disease of the heart, that it may, on the other hand, own no such relationship, and even after

¹ 'Tonsillitis' and quinsy are terms which are frequently confused. Tonsillitis means an inflammation of the tonsil itself whereas quinsy signifies a peritonsillar inflammation which frequently leads to abscess formation.

repeated attacks, be followed by no such consequences, that under the name of 'septic throat' it is very properly recognised as due to bad drainage, that not infrequently, especially in autumn, it seems to become epidemic, and that finally, it often arises under circumstances so ill defined that it is forced to herd with a motley company of congeners and aliens in that enormous pigeon hole labelled 'Chills'—these and perhaps some other facts are familiar to us, but connection and co-relation between them there is none. Fortunately, however, the aspect of the matter which we are considering—namely, the mere utilitarian one of treatment—is but little affected by our ignorance, but before we discuss that question it is desirable to emphasize one point in the diagnosis.

There is, as I have said, nothing in the state of the throat itself to help us to determine whether a tonsillitis is or is not, of rheumatic origin, and as the settlement of this question is of paramount importance to the patient, it cannot be too strongly insisted that a careful examination of the state of the heart should be as much a matter of routine in a case of tonsillitis as it is in chorea or articular rheumatism. And in examining the heart, the feature to which particular attention should be directed is its size. The detection of any signs of dilatation especially of the right heart, is of the utmost importance, for it enables us to deal with the condition while it is still amenable to treatment. If we wait until a murmur has declared itself, the time for effective interference may be

already gone. With some people the examination of the heart is comprised in the use of the stethoscope, but auscultation is in reality far less important than percussion, and he who wishes to detect the earliest signs of impending mischief will do well to bear in mind that most excellent clinical rule, 'Eyes first, fingers next, ears last.'

In the matter of the treatment of a tonsillitis the first point of importance to be observed is the degree of the accompanying fever. If this is slight, the fact should give rise to a strong suspicion of the case being diphtheritic and steps should immediately be taken to settle the diagnosis by bacteriological examination. In most illnesses a moderate elevation of temperature means a moderate degree of anxiety but sore throat provides a notable exception to this very obvious rule, which ought always to be borne in mind, not only because of diphtheria but also because some, at any rate, of the worst septic throats are often attended by a quite insignificant amount of fever.

If the temperature is high, which in most cases of tonsillitis, other than diphtheritic it usually is, the tincture of aconite has an excellent effect. When the thermometer registers 105° F in a patient in whom we need not fear a certain amount of cardiac depression, tincture of aconite in doses of 5 minims every four hours, or, better still (where its effects can be watched) in drop doses hourly for a few hours, will bring down the temperature rapidly, and will confer a degree of comfort on the patient which is really

remarkable. And the higher the temperature, the greater is the confidence with which the drug may be prescribed. If a tonsillitis is taken early enough, it is quite possible to abort it by means of aconite alone. I have learned, however, not to depend on aconite alone. I find that it acts better or, at any rate, that its action is not impaired by the presence in the mixture of other drugs directed against the local and constitutional aspects of the case. For instance, where the case is unquestionably rheumatic in origin, apart from the salicylates upon whose importance I need not dwell, I have found guaiacum to be a most trustworthy remedy, and in spite of the inelegance of the resulting mixture, I can fully recommend this formula.

R. Potass. chlorat	gr ℥
Tr aconiti	℥v
Tr guaiac. ammon.	ʒi
Mucilag. acacie	℥xx
Aquain	ad ʒi
M. Sig. Every four hours	

As soon as the temperature has fallen the aconite should be discontinued, but the other ingredients the chlorate of potassium and the guaiacum, may be persevered with for some time.

When a sore throat is neither diphtheritic nor rheumatic, it is always safe to treat it as due to some septic influence, and the treatment of such conditions is one of the most satisfactory things in all therapeutics. The following mixture, with such slight

variations as special circumstances may suggest, constitutes what the advertisements of quack medicines describe as a sovereign remedy, one of the very few with which I am acquainted

R	Tr aconiti	ʒiſs v
	Potass chlorat	gr v
	Liq ferri perchlor	ʒiſs
	Liq hydrarg perchlor	ʒiſs
	Liq strychninæ	ʒiſs
	Glycerini	ʒiſs
	Aq chlorof .	ad ʒss.

M Sig Every four hours, or better still half the quantity every two hours, at any rate until the temperature falls

As in the case of the previous mixture the aconite should be stopped as soon as the temperature subsides, and the other ingredients continued until the local conditions in the throat are satisfactory

This prescription owes its efficacy to its antiseptic powers. Few people seem to realize that liq ferri perchlor is when taken internally, a bactericide of the utmost value. It was no doubt originally suggested in sore throat because of its astringency, but this attribute would not even partially explain its almost magical effects in a tonsillitis of septic origin. The liq hydrarg perchlor is added with the view of accounting for any cocci which may escape the attention of the iron salt and the glycerine to enable the mixture to remain longer in contact with the fauces than it would otherwise do. Strychnine, in addition to being a general tonic, appears to have an antiseptic effect in most cases of septic sore throat, and it is therefore, always well to include it. Chlorate of potassium is

given more as a matter of routine than anything else. It has a reputation in inflammatory states of the pharynx, and if it does no good, it certainly does no harm. Treated with an initial purgative of a few grains of calomel, and by perseverance with this mixture a tonsillitis which is neither diphtheritic nor rheumatic will yield completely in an astonishingly short space of time.

In the matter of the taking of temperatures not only in cases of sore throat, but in all cases there is a word of warning to which I should like to direct attention. It has been proved that the temperature in the mouth is very materially influenced by many comparatively insignificant conditions which are purely local to the mouth itself. Thus hot fluids such as tea will raise the temperature two or even three degrees, and maintain this elevation for two hours or more. Food of any sort will also raise the temperature though to a slighter degree and cold fluids will depress it. The moral of this is that we should never be satisfied with a temperature which has been taken in the mouth. This is of course infinitely the most convenient place in which to take it especially in a person fully dressed, but we do well to remember that a record so obtained is very unreliable under all circumstances and that it is conspicuously so when any portion of the buccal or pharyngeal mucous membrane is inflamed.

There is a condition which, as it is often described as a **FEVERISH COLD** it is as well to notice here

It is, indeed, known to fame by various names. The scientifically minded call it 'febricula,' those who seek to be impressive describe it as a 'chill on the liver,' while everyone is very liable to mistake it for influenza. It consists of a general feeling of malaise with pains in the back and limbs accompanied by a temperature which may ascend in forty eight hours to 102° F or over. It may be distinguished from influenza by its comparatively gradual onset, by the fact that the pains, though severe are aggravated by movement and are always worse at night by the comparative absence of other symptoms, and by its very rapid defervescence under suitable treatment. The condition has nothing to do with cold, it is as a rule connected with the gouty diathesis even in young people, and is essentially a myalgia or muscular rheumatism¹ distributed over a wide area¹. If it is seen early enough—that is, before the temperature has risen above 100° F—a hot wet pack (*vide* page 8) will probably cut it short. The primæ viæ should be cleared, and aspirin given in doses of 10 to 15 grains every three hours until the symptoms subside. In people who are otherwise healthy I have often known a single dose of 20 grains of aspirin to remove all symptoms in a few hours. It is important to recognise this condition, because the mistake of confusing it, as is now so often done, with influenza creates very unnecessary alarm in the patient's household and amongst his friends. Moreover, the

¹ See Chapter IV

condition being allied to goutiness, a wrong diagnosis of influenza will almost certainly lead to a disastrous line of after treatment. The prostration which follows even mild attacks of real influenza suggests a tonic and stimulating régime whereas the after management of febricula should be directed to prevent a recurrence by combating the gouty tendency which predisposes to the condition. The person who has had influenza 'fourteen times in the last three months' has probably never had influenza at all. The attacks have been due to febricula, and their constant recurrence has been the result of a wrong diagnosis, and its logical outcome mistaken treatment. In a great many of these so called influenzal attacks the real cause is toxæmia of gastro intestinal origin arising from abuse of meat foods, alcohol and tobacco a question which is discussed in the chapter on Goutiness.

Sore throats of septic origin are occasionally overlooked. Where the invasion is severe and the constitutional symptoms are consequently pronounced, the local discomfort is apt to be lost sight of, the patient does not mention the throat, and its condition is therefore not investigated. The high temperature being thus the only objective sign, the case is liable to be regarded as one of typhoid, a watching policy is pursued, and no improvement results. It is therefore a good rule to examine the throat carefully in every case where a high temperature is not due to some obvious cause.

In cases where there is reason to suspect typhoid, there is one simple diagnostic point which, when present, is very helpful. It is that in this disease, though the temperature is usually very high, the pulse may be low, the one registering say, 104° F and the other from 70 to 80. In cases of undoubted typhoid a rapid pulse is of evil prognostic omen.

A CONSTANT SUCCESSION OF COLDS occurring in the same person should never be lightly regarded. The recent impetus which has been given to the study of tuberculosis has resulted in the bringing to light of various signs and symptoms which indicate a condition of what is called pretuberculosis—a condition that is in which, although there may be nothing which permits of a positive diagnosis, there are nevertheless indications of sufficient importance to warrant grave suspicion. The time has now gone by when, before commencing treatment we used to wait in prayerful patience until there was an involvement of the pulmonary area so definite as to be accessible to ordinary percussion and auscultation. We now realize that to wait for the classical signs of phthisis is to allow the period to slip by in which treatment is most likely to be effective. Phthisis can be arrested no doubt under favourable circumstances, but the condition precedent is its detection in its earliest—that is its pretuberculous—stage.

The stigmata which may be said to reveal the exist

ence of this stage are, like a constant succession of colds, for the most part, individually so unimportant that they are properly regarded as minor conditions, it is only the association of several or many of them which confers upon them their gravity. They would seem therefore, to deserve more than a passing notice.

In common with all other toxic agents, the poison of tubercle has certain physiological effects. Of these, one of the most important and far reaching is its relaxing effect upon the peripheral vessels. When it is borne in mind that the tuberculous toxin is initially above all things a powerful vaso dilator, it becomes comparatively easy to understand and recall many of the phenomena of pretuberculosis which otherwise seem disjointed and obscure.

Directly consequent upon this vaso dilation is the important symptom of *tachycardia*. What is true of most of the other symptoms to which, in this connection, reference will be made is very conspicuously true of tachycardia—namely, that it is by no means always present. In cases of demonstrable tuberculous lesions it is, of course, a prominent and constant symptom, but in the very earliest stages there are frequently no signs of heart-hurry. Nevertheless, an unduly rapid pulse in an otherwise seemingly healthy person should always suggest tuberculous infection as its cause. A grave error is often committed in attributing such a tachycardia in young men to excessive tobacco smoking.

Another symptom which is directly due to the vaso-dilation caused by the poison is *albuminuria*. A good deal of very unnecessary, and, I may add, scarcely justifiable, alarm is occasioned to patients and their friends by the unduly narrow view which is commonly taken of the significance of this symptom, for albuminuria, it seems necessary to insist, is a symptom, and nothing more than a symptom, and it is as absurd to regard it as synonymous with kidney disease as it would be ridiculous to consider epistaxis as synonymous with typhoid fever. Albumin will appear in the urine if the kidneys are in any degree passively congested. A widespread vaso-dilation will readily cause this passive congestion, especially if the patient be going about in the ordinary way—if, that is, he is for the most part in the erect posture. This is a phenomenon with which we are all familiar in the cyclical or postural albuminuria of adolescents, a condition which has been attributed to many causes, and has in numberless instances been made the occasion of solemn head shakings, but which is in reality due simply to a want of tone in the muscular coats of the peripheral vessels giving rise to passive congestion in the renal area. Owing to the vaso-dilative effect of the poison, this passive congestion is very liable to occur in early tuberculosis. It is not, of course, suggested that all those who present the phenomenon of cyclical or postural albuminuria are necessarily pretuberculous, but I am distinctly of

opinion that the discovery of albumin in the urine of an adolescent which has not been voided immediately after exercise, is a sign which should lead to a very minute examination for other evidences of tuberculous invasion. Collier of Oxford and others have conclusively shown that albumin in the urine of young men soon after exercise is not only without morbid significance, but that it may even be regarded as a normal sequence of severe muscular exertion.

Another symptom of early tuberculosis in the causation of which vaso dilation may reasonably be considered to bear some part is *dyspepsia*. Dyspepsia, especially of the asthenic type is due to a faulty adjustment between the blood pressures in the local areas. A widespread vaso dilation disturbs the normal balance, and so deprives the gastric area of that increment of blood which for the purposes of the digestive process is essential to it. The dyspeptic symptoms which so commonly forerun the ebullition of definite tuberculosis more especially of the lung are thus easy to understand. The difficulty consists in the fact that we are so liable to forget their true significance. Such a dyspepsia may be accompanied either by diarrhoea or constipation but in the earliest stages constipation is much the more common.

Two other signs which may be included under the head of results of vaso-dilation—namely, *mental hebetude* and *muscular debility*—are by no means

peculiar to tuberculosis but like others their presence—especially their continued presence—in young people without obvious cause goes to swell the number of points upon which a superstructure of reasonable suspicion may be erected. The majority of lethargic children who are punished for indolence at school, when they are not the subjects of eyestrain or nasal obstruction owe their lack of energy and want of comprehension to the relaxing effects of the tuberculous toxin, and a large number of adults who are idly labelled 'neurasthenic' undoubtedly owe their nervous exhaustion to the early inroads of the bacillus.

Among the many causes which give rise to *suppression of the menses* the action of the poison of tubercle should not be forgotten. This is another symptom which is due directly to its vaso dilative power. Menstruation is effected by the dilation of the pelvic vessels coincidently with a contraction of the other systemic arteries. If the contraction of these arteries is prevented, as by nitrite of amyl or trinitrine the menstrual flow does not appear. The poison of tubercle acts in the same way, though less powerfully and hence it is that amenorrhœa is so common a precursor of obvious tuberculous mischief.

The second physiological effect of the tuberculous toxin under which, in our efforts to generalize we may group some of the phenomena of the very early stages, is irritation of the nervous system. The most

important member of this group is certainly *pyrexia*. The fever of tuberculosis is one of the most interesting features of this complex disease. It is as a rule, slight, sometimes so slight as to escape the notice of all but the most meticulous observer, and, although it is almost invariably present, it is usually only at night that it is to be detected. By no means infrequently it follows in the wake of a pyrexia due to some obvious and well recognized cause, and seeks, as it were, to conceal its real significance by masquerading as a continuance of this initial complaint. But perhaps the most characteristic feature about the fever of tubercle is its persistence. We have all been taught to suspect the operations of the *bacillus typhosus* in a case where malaise and a temperature represent the only departures from the normal. It does not reduce the value of such advice to recall the saying of the late Dr. Moxon of Guy's Hospital, to the effect that if a candidate at an examination failed to include tubercle among the causes of continued fever, he always referred him to his studies. Among the many negations and ambiguities of this evasive and protean disease we have, then, this positive and unequivocal sign to aid us—that fever, whether it be of the intermittent remittent, or hectic type especially if the rise be slight and present only in the afternoon between the hours of 2 p.m. and 6 p.m., which persists beyond the allotted span of recognisable fevers, is in all human probability tuberculous in origin.

It is, however, necessary to remember that a temperature of 99° F to 99.6° F is not uncommon from 2 to 8 p.m. for three or four days before a perfectly normal menstrual period. Moreover, Kingston Fowler says that the only form of pyrexia which can be regarded as pathognomonic of tubercle is that in which the temperature is higher in the morning than in the evening. A subnormal temperature when persistent and most pronounced in the evening is generally due to thyroid insufficiency.

To an undue irritability of the nervous system we may, I presume, attribute the *psychical characteristics* of most pretuberculous persons. The sufferers from gross lesions are notoriously, unduly, and even pathetically optimistic in their mental outlook, but such is seldom the attitude of the pretuberculous. The atmosphere surrounding the latter can best be described by the French word *difficile*. It is not that they are necessarily aggressive, though they sometimes are, but they present a conspicuous absence of what Matthew Arnold used to describe as 'sweet reasonableness'. They are passive resisters to any suggestions for their welfare, and they are apt to try the tact and patience of the physician more severely and more obstinately even than people who are definitely insane. A change of manner and disposition in this rather indefinite direction, more especially when associated with other signs, constitutes confirmatory evidence of very anxious omen.

Very considerable importance is attached in France

to a sign of pretuberculosis, which is presumably the direct outcome of irritation of the nervous system, of which in this country we hear very little—namely an *exalted sexual appetite*. The toxin of tubercle would seem, especially in young men to exercise a very decided aphrodisiac influence and our French friends contend that in the many cases in which the disease appears to supervene as a fitting nemesis upon a licentious adolescence the real truth lies in the fact that when the unfortunate patient embarked upon his immoral career he was already the subject of tuberculous invasion—that it was, in fact, the action of the toxin which impelled him to the unbridled gratification of his passions. This view of the matter is well worthy of serious consideration among people like ourselves in whom an unduly literal interpretation of the Old Testament teaching has begotten a belief in the direct intervention of Providence for the immediate physical punishment of moral transgression.

Trousseau was the originator of the saying which has been attributed to many physicians since his time, that an *anæmia* which does not yield to iron is probably due to tubercle. It would be difficult to overestimate the value of the practical lesson which this saying is intended to convey. The form of *anæmia* to which it refers is of course, a general *anæmia* in young girls we should call it chlorosis. An examination of the blood reveals nothing which serves to distinguish it from chlorosis but it is of

paramount importance that it should be so distinguished, and that as soon as possible. There is also a local anæmia, which as being more common, is of even greater importance than this general anæmia, and of which in our search for the stigmata of pre-tuberculosis, we do well to remind ourselves. This is the anæmia of the soft palate with which throat specialists are familiar in all cases of laryngeal tuberculosis. Now, this is a symptom which frequently occurs quite independently of a general anæmia and independently also of definite laryngeal tuberculosis, it is, in fact, a valuable sign of pre-tuberculosis and one which from its ease of recognition should always be looked for. It seems hardly necessary to point out that in the other two classical chronic diseases—namely, gout and syphilis—the soft palate instead of being ischæmic and insensitive is almost invariably injected and irritable. The pre-tuberculous throat supports a laryngeal mirror with equanimity, the gouty or syphilitic throat will often refuse to tolerate it until cocaine has been applied.

In connection with the throat there is another matter to which it seems pertinent here to refer, and that is the significance of *functional aphonia*. This is commonly and very authoritatively described as one of the stigmata of hysteria, but it is now being invested with a fresh importance, inasmuch as it is confidently regarded as one of the very earliest manifestations of pre-tuberculosis.

Among the symptoms of pre-tuberculosis the exact

meaning of which still awaits explanation the occurrence of dyspnœa is probably the most important. The *dyspnœa* of the fully developed or active pulmonary lesion requires, of course, no explanation, but it should be remembered that breathlessness due to a tuberculous cause is by no means confined to the later stages of the disease nor is it even a special attribute of pulmonary invasion. There is a dyspnœa which is apt to appear in the very earliest stages of tubercle and is just as likely to herald abdominal or intracranial mischief as the more classical phthisis. There is nothing characteristic about it except that the most careful examination of the heart and lungs fails to afford any explanation of its meaning. It is to be distinguished from the dyspnœa of slight effort, which is so suggestive of functional high blood pressure, only by the observation of concomitant signs. In tuberculosis there will probably be present some of the other stigmata with which this section deals, and the patient will generally be young. In the arterial condition there will be the accentuated second sound at the aortic base and the patient will generally be at least middle-aged. There is also the sphygmomanometer to aid us, for whereas high blood pressure from vaso constriction is the essence of the one condition, low blood pressure from vaso dilation is characteristic of tubercle, even in its earliest stages. It has been well said that a persistent dyspnœa which cannot positively be assigned to a definite cause is almost certainly tuberculous.

In weighing the evidence for and against the presence of tuberculosis in any particular case, the importance of the condition of the bronchial glands cannot be overestimated. They constitute the first line of defence where the primary infection comes by way of the air passages, so that they tend to show a very early reaction to any disturbing influence. It is unfortunately impossible to examine these glands during life, and they may therefore attain to a considerable size before they hoist signals of distress. There are nevertheless, two signs for which it is our *duty to search whenever there is any suggestion of tuberculous involvement*. One of these is *slight paresis of a vocal cord*. Generally, but not invariably it is the left cord which is thus affected, for the same reason that it is affected in aneurism—namely, on account of the anatomical disposition of the left recurrent laryngeal nerve. In a few cases, however, it is, for some unexplained reason, the right cord alone which is affected. The other symptom is also associated in our minds with aneurism and is doubtless due to pressure upon the sympathetic—namely, *inequality of the pupils*. This sign, like many of the others which we have been considering, can only be regarded as tending to confirm a suspicion otherwise aroused, more especially as it is undoubtedly present in many people who are perfectly healthy.

A history of a constant succession of colds, to which reference has already been made, is very suggestive of

comes on without pain, fever, cough, or any of the other signs which usually proclaim the onset. The patient feels unwell rather than positively ill; his only complaint is dyspnœa, but when his chest is examined, one pleura may be found to be full of fluid. This stealthy form of pleural effusion may follow some definite pulmonary disease, or it may occur independently of any previous illness. It is perhaps rare, but when it does occur, it almost invariably connotes tuberculosis. When we do meet with it, therefore, we do well to treat it with all the circumspection which its true inwardness demands.

When suspicions have once been aroused, it is our duty to institute a minute search for anything by which they may be confirmed. The lungs should be examined for weak breathing, especially at the bases; for harsh or cog-wheel breathing, especially at the apices, and the possible presence of enlarged lymphatic glands, more especially in the neck and axillæ, should engage our attention. The details of these matters are carefully reviewed in most of the text-books, so that they need not be considered here.

An accessory diagnostic aid which has the double merit of helpfulness and ease of application is the *ulnar reflex*. The patient's forearm is bared and the arm placed in the flexed position, with all the muscles, especially those of the fingers, fully relaxed. If a pin be now sharply drawn along the whole length of the

ulnar side of the forearm from elbow to wrist, in most tuberculous cases the abductor minimi digiti will contract, and cause a distinct reflex wrinkling of the hypthenar eminence. This response of the abductor minimi digiti, while it cannot be called pathognomonic of tuberculosis, may nevertheless be regarded as confirmatory evidence of the strongest description. It is very seldom present in conditions other than tuberculosis, but is by no means always present in cases which are undoubtedly tuberculous. The response has seemed to me to be more readily elicited in those accustomed to use the small muscles of the hand, and very difficult to obtain in those who are engaged chiefly in coarse employment. Like many other valuable signs, there is doubtless a certain degree of ambiguity in connection with it. When it speaks, within certain limits it speaks true, but when it does not speak we must not allow ourselves to be lulled by its silence into any false sense of security.

When all the clinical methods have been exhausted we can when still in doubt carry our appeal into other, though not necessarily higher, courts. It is scarcely necessary to mention an examination of the sputum for the presence of bacilli, because the importance of such a procedure, if overlooked by the medical man, is sure to be remembered by the patient or one of his friends. At the stage which we are now considering, however, it is only right to say that such an examination would almost certainly prove negative.

ADDITIONAL FORMULÆ

Nasal Washes

Lotions intended for cleansing the nose may be used as simple hand washes, or placed in a nasal douche irrigator, or spray. The nasal douche of any apparatus on the siphon principle is to be avoided the great and continuous pressure exerted rendering its use dangerous. A simple method is to sniff up the lotion from the palm of the hand or from a shallow cup wineglass or bowl through the nose letting it pass well into the throat and returning it through the mouth. This should be practised before rather than after meals, as it may excite retching or even vomiting. About an ounce and a half of solution should be used at each time, and it should be employed comfortably warm (about 100° F). The use of a nasal irrigator should, however, where possible, always be substituted for the above.

A spray may also be used but it is not nearly so effective as a douche. An instrument giving as coarse a spray as possible should be chosen.

The following formulæ have stood the test of time ¹

R	Sodu bicarb	gr iii.
	Sodu biborat	gr iiii.
	Acid. carbol	gr i.
	Sacch. alb.	gr v.
	Aquam	ad ℥i.

M et solve Detergent

¹ See Pharmacopœia of the Hospital for Diseases of the Throat.

R	Tr benzoin co	℥v
	Sodu biborat	gr v
	Sacch. alb	gr v
	Aquam	ad ℥i

M Sedative

Seigle's steam spray producer is a very useful apparatus when a warm spray is preferred. Used in this apparatus the following was a favourite combination of the late Mr Arthur Durham's in the treatment of 'hospital throats

R	Boracis	℥ss.
	Acid borie	gr xl.
	Tr iodi	℥ss
	Lsg morph. hydrochl.	℥
	Glycerine	℥i.
	Aquam	ad ℥viii

M

This may be used for ten minutes every hour, and will be found very soothing

Gargles.

About half a fluid ounce should be taken in the mouth for each act of gargling and this should be repeated four times on each occasion. Gargles should be used about every four hours and should always be used as hot as can be borne

R.	Potas. chlorat	gr xil.
	Sodi bicarb	gr vi.
	Potas bicarb	gr vi.
	Aquam	ad ℥i

M Ft garg Detergent and sedative.

R.	Resorcin	gr x.
	Aquam	ad ℥i.

M Ft. garg Antiseptic.

The following is a useful snuff :

R.	Menthol...	...	...	...	gr viii.
	Iodol	...	...	...	gr lxxx.
	Acid. boric.	...	...	...	gr co.
	Sacch. alb	...	...	...	℥i.

M. Sig. To be used as a snuff

Cough Mixtures

To allay Tickling Cough.

R.	Tr. camph. co.	...	...	...	℥il.
	Oxymel scullæ	...	.	..	℥il.
	Syr tolu.	...	...	...	℥il.
	Glycerin.	..	..	...	℥il.

M Dose 1 drachm.

R.	Heroin .	...	..	...	gr i.
	Acid hydrocyanic dil.		.	..	℥xxx.
	Oxymel scullæ	...	..	...	℥il.
	Syr limonis	...	..	...	℥il.
	Aquam	...	...	...	ad ℥il.

Dose. 1 teaspoonful.

An exceptionally agreeable mixture is that sold by Ferris and Company of Bristol under the name of syr. pectoralis rub

A useful lozenge is:

R.	Menthol	...	...	...	gr ½
	Pulv glycyrrhizæ	...	...	...	gr il.

M. Ft 'nigroid.'

Influenza.

Dr J C Ross, of Manchester, speaks in the highest terms of the effect of the oil of Ceylon cinnamon bark in the treatment of this condition. The earlier the treatment is commenced, the more

satisfactory are the results ; but, however late in the disease the oil is administered, it *never* fails to do good. It allays the subjective sensations, rapidly reduces the fever, and prevents sequelæ. Twelve drops of the oil in a wineglassful of water are given immediately, and the dose is repeated in an hour. Two hours after the second dose 10 drops are administered, and then 10 drops every two hours until the temperature falls to normal. After this 10 drops are given three times a day for three days. Other writers appear to have had equally favourable results from this line of treatment, which seems well worth a trial.

Chronic Bronchitis.

In the treatment of the chronic winter cough of the aged, attended by copious expectoration, the following is recommended:

R. Liq. picis aromat (Bell)	...	℥i.
Glycerini ...	...	℥iv.
Ext. liq. glycyrrhizæ...	...	℥iss.
Spts. ammon. aromat.	...	℥iv. to ℥vi.
Tr. cardam. co.	...	℥iv. to ℥vi.
Aq. chloroform.	...	ad ℥viii.

M. Sig : A sixth part thrice daily.

CHAPTER II

INDIGESTION

I INTEND in this chapter to confine myself to the consideration of those forms of dyspepsia which are not of organic origin. The dyspepsias which arise in association with cancer with ulcer, with hepatic and renal cirrhosis with pulmonary tuberculosis, and other forms of structural disease, are exhaustively considered in the text books, whereas the purely functional dyspepsias—the dyspepsias that is, whose symptoms are due to such faults as those of secretion and motility—though far more frequently encountered in daily practice are not so considered. They occur in people who are for the most part otherwise healthy, who are impatient of the disabilities and discomforts which the malady imposes upon them, and who are impatient also of anything short of prompt and complete relief. Their successful treatment is, therefore, a matter of considerable importance.

To this end our first care must be to learn to classify them properly. In view of the multiplicity of qualifying and would be distinctive adjectives which are generally found in connection with the

term 'dyspepsia,' this would not at first seem to be a simple matter. In quite a recent text-book the varieties of gastric indigestion are given as follows atonic, gouty, renal, irritative, flatulent, and acid, and reference to other text-books would in all probability reveal several more. But, in that they suggest essential distinctions, these terms are in reality misleading. It is better, therefore, to discard them altogether and to classify functional dyspepsias under two heads only—the sthenic and the asthenic. These two present distinct and definite clinical types, with different pathology, different symptomatology, and different treatment. All else is chaff and dust, which let the wind blow whither it listeth.

But before we proceed to the details of this classification, it is necessary to consider briefly the main facts of gastric digestion in the light of the well known researches of Pawlow.

We know that the masticated and insalivated food passes from the mouth down the œsophagus into the stomach, where it is acted upon by pepsin and HCl, and the arresting feature in connection with the above mentioned researches is the prominent part which, in their light, must henceforth be assigned to the action of HCl. It used formerly to be believed that pepsin was the predominant partner in this association, it is now recognised that HCl is of infinitely more importance. The presence of HCl is essential to the activity of the ferment, and

if the acid is not present in sufficient degree, no conversion of the food can possibly take place. The mass becomes a mere mechanical irritant to the mucosa, and excites only the outpouring of alkaline mucus. This in its turn surrounds the mass and renders its permeation by the digestive fluids still more difficult. But this is not all. HCl, which is thus seen to be necessary to gastric digestion, is by the above-mentioned researches shown to be necessary also to pancreatic digestion. 'Bayliss and Starling have shown that the hydrochloric acid of gastric juice acts on the *pro-secretin* stored in the intestinal mucosa to form *secretin*, a specific stimulant to the flow of pancreatic juice. . . Therefore, if there is not a due secretion of acid, pancreatic digestion is impossible.'

Now, we know that the functions of the pancreas include the digestion of fats and the elaboration of such of the carbohydrates as have escaped digestion by the saliva, so that it is evident that the absence of a proper quantity of HCl in the gastric process imposes serious effects not only upon the digestion of proteids but upon the digestion of all the proximate principles of food, proteids, carbohydrates and fats. It is therefore impossible to overestimate the importance of the presence in full force of this constituent of the gastric juice.

Let us now look at the other side of the picture, and consider for a moment what happens when the hydrochloric acid, instead of being deficient, is ex

cessive in quantity—a state of matters which as we shall see presently, may be the result of various causes. In the normal person no more gastric juice is secreted at any individual meal than is necessary to the digestion of that meal, so that in a certain time after the meal is finished the secretion slows off and eventually ceases. If the stomach supplies too much juice or if the supply is continued beyond the limits of the digestive requirement, the food mass becomes too acid to be allowed into the duodenum. The pyloric sphincter therefore contracts and prevents the passage of the food out of the stomach until the bile and pancreatic juices are present in quantities sufficient to neutralize its acidity. This may take some hours and the gastric mucosa and nerve endings are during the interval subjected to continual irritation which varies in degree according to the amount of acid present in excess.

Now it is possible to bring all cases of functional dyspepsia under these two heads—those in which hydrochloric acid is deficient and those in which it is excessive. And first, it is necessary to remember that the *causa causans* of the dyspepsia is the same in both—that is, the retention of food in the stomach long after that viscus ought to have finished with it. In both cases the mass becomes a species of foreign body giving rise directly to pain, the outpouring of mucus and the development of flatulence and indirectly to languor, sleeplessness, and irritability of

temper These symptoms, then, are common to both classes, and indicate merely that we have a dyspepsia to deal with They may be present in every case of indigestion, and consequently they afford no assistance in classification

As bearing on this fact, it is well to remember that there is a line of treatment which, in so far as it is successful at all, is equally successful in both. This is the practice of giving alkalies before meals Alkalies were originally given before meals on the supposition that they excited the flow of hydrochloric acid and pepsin in the stomach As the practice gave relief to a very large number of dyspeptics, the supposition was held to be correct until the researches already referred to conclusively proved that, so far from promoting the flow of gastric juice, the alkalies very materially retard it

How, then, are we to explain the benefits which have admittedly followed the practice of prescribing alkalies in all forms of dyspepsia? In the light of what we have already seen as to the mechanism of dyspepsia, the explanation is not very far to seek The mass which tarrys in the stomach (whether the tarrying be the result of too little hydrochloric acid or of too much) sets up an irritation, which in its turn provokes the outpouring of mucus and the development of flatulence, the evil effects of which are still present when the time for the next meal has arrived. If, however, just before that meal is taken—say half an hour before—we put into the

stomach a draught of water containing an alkali, we are applying lavage to that stomach—we are washing it out with a solution which is of all others the best calculated to remove the sticky mucus which is adhering to its walls and occluding the mouths of the secreting glands

Herein, then, resides the efficacy of the practice of giving alkalies before meals—the organ is relieved not only of the mucus but also of the undigested residue of the last meal, and is thereby cleansed and prepared for the reception of the next. And, as I have said, it matters nothing in this connection which form of dyspepsia we are dealing with, for in both there are undesirable matters to be removed and in the treatment of both a clean stomach for each meal is a great desideratum

One practical point emerges from these considerations namely, that if our desire is to wash out the stomach, we should see to it that the fluid is not stinted. The alkali—say 10 grains of sodium bicarbonate—should therefore be dissolved in, or immediately followed by, a full half pint of water, preferably hot.

In one other respect, and in one other only, is it unnecessary, from the point of view of treatment, to distinguish between the two forms of dyspepsia—I mean the freeing of the *primæ viæ*. Above all things, let the state of the bowels engage the most serious attention. The presence of constipation will obscure every issue and nullify every therapeutic

effort. The best initial measure is undoubtedly a dose of calomel. This drug is not only a purgative but it is also the very best of all intestinal antiseptics. Further, the excretory function of the skin should not be despised. It is too large a question to be discussed here, but there are many facts which point to the conclusion that some of the more obscure phenomena of indigestion are to be explained by assuming that defective cutaneous activity reacts in a special manner upon the gastric secretions. Be this as it may, a hot bath or a hot wet pack at the onset of treatment will often make all the difference between prompt and tardy relief.

Now how are we to distinguish between these two forms of dyspepsia the *sthenic* and the *asthenic*? There are certain marked differences both in the type of patient and in the nature of the symptoms which cannot fail to strike the careful observer. The *sthenic* form occurs in people who seem other wise to be in robust health — people who are for the most part strong, active, and energetic, and who are seldom teetotallers. The *asthenic* form appears in weakly nervous convalescent or overworked persons who may be teetotallers, but who are generally tea-drinkers. The one is essentially an active, positive, the other a passive negative type, and the distinctions between the symptoms are in consonance with these characteristics. The *sthenic* tongue is firm and generally furred the *asthenic* is flabby, frequently indented at the edges

and generally clean and glazed. The sthenic pulse is slow and full, the asthenic quick and feeble. The sthenic appetite is voracious and ever present; the asthenic is weak, capricious, and often absent. In the sthenic, the discomfort consists of a sense of epigastric fulness; in the asthenic, it consists of actual pain in the epigastrium striking through between the scapulæ. In the sthenic, a full meal relieves the symptoms; in the asthenic, it aggravates them. In the sthenic, the mental state is one of irritability; in the asthenic, it is one of depression. But perhaps the most striking, as it is certainly the most diagnostic, distinction is presented by the period of onset of the symptoms. This in the sthenic is delayed until towards the end of the digestive process—that is, from four to five hours after a full meal; whereas in the asthenic the discomfort, always more or less present, becomes acute within half an hour of the ingestion of food.

There is one symptom which is often mentioned in connection with dyspepsias of all sorts which, nevertheless, occurs only in the sthenic form—namely, heartburn. It is by no means always present, but when it is there can be no shadow of doubt as to the class to which the case belongs. The same may be said of pyrosis or the gushing of alkaline fluid from the mouth or into the mouth. This fluid is in reality saliva of a rather higher alkalinity than normal, and its secretion represents an effort on the part of Nature to relieve the symptoms by introducing an

alkali into the stomach. It only occurs in very severe cases, but when it does occur the diagnosis is no longer in doubt

The matter of differentiation is not, however, always so easy as the above distinctions would seem to indicate. It must be remembered that we are dealing almost exclusively with subjective phenomena; that not all patients are intelligent, and that most dyspeptics exaggerate their symptoms. But, fortunately, where, after due consideration, a doubt does remain in our minds as to whether we are dealing with a sthenic or an asthenic case, it is speedily set at rest by the results of treatment. For, as will be readily understood from the essential features of the two conditions, what will relieve the one will tend to aggravate the other. If, for example, we give a dose of HCl to a patient suffering from sthenic dyspepsia, we thereby increase the amount of the offending material, and add conspicuously to his miseries, and, similarly, if to a stomach which is crying aloud for HCl we respond by administering an alkali, our interference can have but one effect—that, namely, of aggravating the existing mischief. This refers to medicines given after meals.

As I have already pointed out, medicines given before meals have the effect of washing out the stomach, but they exercise no influence whatever either upon the secretion of gastric juice or upon the digestion of the food itself. Effectually to treat either form of dyspepsia, then, it is necessary to rely

absolutely upon the action of the drugs which are introduced into the stomach after the meal is taken.

Let us now take a case of **STHENIC DYSPEPSIA**, and see how it should be treated. We will assume the patient to be a man of middle age who has at one time been fond of athletics, but who has been obliged by business exigencies to give them up, who is capable, hard working, and energetic. He complains of epigastric discomfort after food, flatulent eructations and mental irritability. The symptoms are not pronounced until some time has elapsed after a meal, indeed, he not infrequently associates them with the period *before* a meal, and may attribute them to hunger, a theory which obtains support from the fact that a feeling of 'sinking' in the epigastrium is often present, and that he is always better immediately after he has fully satisfied his rather vigorous appetite. He dines at 7.30 p.m., and is very often awakened between four and five in the morning with heartburn, pyrosis, sneezing, hiccupping, asthmatic attacks or other troubles, which, however, rapidly subside as soon as he is able to 'disperse the wind' of which his stomach appears to be full.

In the daytime he is liable to suffer so much from palpitation that he feels sure there must be something wrong with his heart.

The first thing to be done with such a man is to clear his *primæ viæ*. He should be given a dose of calomel (remembering that those of dark complexion bear this drug better than those who are fair), he

should be ordered a turkish bath, an electric light bath or an ordinary hot bath, and induced, if possible, to take some daily exercise in the open air, or at least at the open window. The unwisdom of wearing wool or flannel¹ next his skin should be explained to him, and he should be enjoined to masticate his food adequately. These and other warnings suggested by the special circumstances of the case must be emphasized, but the great, the paramount, the urgent need in such a patient is for an antacid to be taken either as soon as his symptoms commence, or, if possible, immediately before their onset.

The antacid which is most popular is the bicarbonate of sodium, but this salt is an antacid pure and simple, and is possessed of no sedative properties. It also has the disadvantage, especially where flatulence is troublesome, of increasing the amount of gas in the stomach. What is required is an antacid agent which is free from this objection, which at the same time is possessed of sedative properties. Such an agent is bismuth. There have been many differences of opinion regarding the merits of this drug. The disappointments attending its use in suitable cases have been almost certainly due to its employment in insufficient quantities. The ordinary B.P. doses are utterly useless, the minimum which I employ is of the subnitrate 25 grains (B.P. 5-20), and of the liq. bismuth ammon. cit. (B.P. 30-60) 2 drachms.

¹ See Chapter VII

It is these two preparations which I have learned to appreciate most highly. The subnitrate may be given either in cachet form, or suspended in a mixture. When prescribing it as a cachet I generally combine it with that excellent sedative, oxalate of cerium (whose B. P. dose of 2 grains is also ridiculously inadequate), thus :

R.	Bismuth subnit.	.	.	..	gr. xiv
	Ceru oxalat	.	.	.	gr. x.
M	Sig Ter die post cib				

If, as is not infrequently the case, the patient has a gouty tendency, it is well to add 5 grains, or a little more, of pulv guaiaci to each cachet, but it not infrequently happens that the 'little more' is found to produce griping, purging, or both. Another drug which might be added to such a cachet is bicarbonate of sodium. It increases the alkalinity, but it increases also the bulk of the cachet and the quantity of gas in the stomach.

Although the subnitrate is frequently prescribed in a mixture (20 grains of the salt to 20 grains of pulv tragacanth co), it is not wise to do so. The carbonate acts nearly as well, and does not tend to decompose as the subnitrate does. On no account should the subnitrate be placed in a mixture with bicarbonate of sodium. The decomposition of the former leads to CO_2 being evolved from the latter, and explosions are apt to occur.

If it is desired to give bismuth in a fluid form, the

liq bismuth ammon cit should be used I am in the habit of combining it (as in the cachet) with a sedative—*i e*, hydrocyanic acid—thus

R. Liq bismuth. ammon. cit.	}	℥ss
Syr pruni virg		℥i.
Aquam ..		ad ℥i.
Misce		

This makes an agreeable and palatable mixture but if, with a view of correcting any gouty tendency, we add, say, ʒss tr guaiaci ammon we must remember to suspend the latter in 40 grains of mucilage of acacia, and even then the mixture will be deprived of its elegance There is no objection to adding bicarbonate of sodium to this combination, but there is really no necessity to do so for it is already sufficiently alkaline.

Now whichever form is decided upon, the cachet or the mixture, the important point to remember is that the proper time for its administration is some time after food. The length of time which should be allowed to elapse between the meal and the taking of the remedy depends, of course, upon the size of the meal. A full meal will take five hours to digest and will use up a great deal of HCl A light meal especially if it be poor in proteids will use up very little acid—that is why sthenic dyspepsia is so much more common after light meals—and the surplus will want neutralizing relatively soon It will want neutralizing sooner after breakfast than after luncheon and sooner after tea than either After a full dinner the symptoms

frequently do not show themselves until about 4 or 5 a m., and may then, in addition to pyrosis and heartburn, take the far more obscure forms of hiccoughing, sneezing, asthmatic, and even anginal attacks. Any symptoms, however little connected with the stomach they may at first sight appear, which recur regularly at 4 or 5 a m. should give rise to a suspicion that dyspepsia is at the root of the mischief.

It is probable that much of the success which has attended the practice of giving alkalies before meals has been due to the fact that the period immediately preceding one meal is the period which witnesses the close of the digestion of the last—the period, that is, in which there is surplus acid waiting to be neutralized. However that may be, there can be no doubt that the administration of alkalies, and especially of bismuth, at a suitable interval after food, offers a means of relief in sthenic cases which is practically unfailing, and I would go so far as to say that if relief is not obtained by such means then the case is certainly not a dyspepsia of the class under consideration.

A line of treatment recommended by the late Sir William Roberts is that of prescribing lozenges to be sucked by the patient as soon as the symptoms have developed. Lozenges have the advantage of portability, and the sucking of them insures that the superfluous acid in the stomach shall be neutralized by its physiological antidote, namely, saliva. It is curious to note that the saliva secreted during a sthenic dyspeptic attack is hyperalkaline. It is as if Nature

herself were suggesting the best means of curing the condition, for not only is the reaction enhanced, but the amount of the fluid is markedly increased in those attacks which the presence of pyrosis and coryza proclaim to be of more than usual severity

The lozenge which Sir W Roberts preferred was the trochis bismuth of the B P, which contains $3\frac{1}{2}$ grains of chalk and $2\frac{1}{2}$ grains of carbonate of magnesia, but, true to his disbelief in bismuth he suggested that this ingredient should be omitted. However, so long as the lozenge is not acid, it probably matters little of what it is composed. The efficacy of this line of treatment resides in the use which is very properly made of the alkaline saliva in neutralizing the offending acid. Even the mechanical irritation of a clean pebble carried in the mouth is useful in this direction, and patients should be told to remember it in the presence of an attack where no alkalis are at hand.

There is a point in prophylaxis which ought always to be brought to the notice of a sthenic dyspeptic. The source of the hydrochloric acid present in the gastric juice is believed to be common salt, patients should, therefore, be told to eschew salted meats, and be warned to relinquish the habit of adding chloride of sodium to their food. It is merely a habit, and few have any difficulty in relinquishing it. If the supply of the raw material is checked, the over-production of the manufactured article will cease.

And this consideration carries another lesson, which is this. The natural mineral waters which are so

largely imported into this country have justly earned for themselves a great reputation in the treatment of chronic and occasional constipation. As nearly all these waters contain chloride of sodium and some of them in very large quantities it is inadvisable to recommend them to patients whose constipation is associated with sthenic dyspepsia. To relieve the difficulty in such cases recourse must be had to other means. Cascara is very serviceable but I prefer either of the following given three times daily before meals followed by a glass of hot water

R.	Sodii sulphat	gr xxx.
	Sod i bicarb	gr x.
	Tr nucis vom.	ʒiv
	Ess. menth pip.	ʒiij
	Inf gent co	ad ʒl.

M

R.	Magnes sulphat	gr xxx
	Magnes carb	gr x.
	Tr nucis vom.	ʒiv
	Ess. menth pip	ʒiij
	Inf cascariilæ	ad ʒl

Either of these mixtures takes the place of that containing sodium bicarbonate suggested above for 'lavage' of the stomach, and if persevered with may be relied upon to dispose of the constipation.

Among those who suffer from sthenic dyspepsia, there are a very large number of people (mostly maiden ladies and widows) who are persuaded that they want 'supporting' that their condition is due to debility and that large and frequent meals are

essential to their continued existence. Their miseries towards the end of digestion, and the prompt relief which is afforded by another meal, lend an amount of support to this view which no skill in the art of persuasion is in some cases sufficient to combat. If the real state of affairs is pointed out to them, they write the doctor down as an unsympathetic person, who is devoid both of perception and therapeutic instinct. Nevertheless, the attempt should always be made, for it is better to lose a patient than to share in the responsibility for the arterio sclerosis and other serious manifestations which sooner or later provide a fitting Nemesis for these misguided people.

And this leads me to say that mistakes in differentiating between the two kinds of dyspepsia generally take the form of diagnosing as an asthenic case one which is in reality a sthenic case. Patients who pity themselves readily dwell upon the weakness which they feel, and, believing their symptoms to be due to debility seek by graphic and heartrending descriptions, to persuade the doctor to the same view. This is a pitfall against which it is very necessary that we should be on our guard. When there is any doubt about the nature of the case, it should be treated as if it were sthenic by the exhibition of alkalies and sedatives. The reason for this is that alkalies and sedatives, though they may do an asthenic case no good will certainly not aggravate the symptoms, whereas acids given to a sthenic dyspeptic immediately give rise to an acute exacerba

tion of all the troubles from which he is praying to be delivered

On the subject of the treatment of acidity, Professor Maclean has the following

‘The most effective alkali to use in combating acidity is sodium bicarbonate, and this is the product that occurs naturally in the pancreatic juice. Sodium bicarbonate has the disadvantage that though it quickly neutralizes acid, yet when present in excess it tends to irritate the stomach, with the result that it stimulates the secretion of gastric juice. There is little doubt of this as a clinical fact, for when sodium bicarbonate alone is used in cases of hyperacidity, the initial relief obtained is very soon followed by symptoms which may be more marked than they were at first. This certainly happens in some patients, though not in all. If it were possible to give just the exact amount necessary to neutralize the acid present, this substance would be an ideal medicament, but, unfortunately, this is not possible. To be of value, excess must be given, and this excess is the cause of the trouble. The difficulty can be overcome by taking some insoluble base along with the sodium bicarbonate, so that if any acid is secreted after all the sodium bicarbonate is used up, the insoluble base will be present to neutralize it.

‘I have tried all the ordinary alkalies and various combinations of them in large numbers of cases, and have come to the conclusion that the best all round mixture for gastric disturbances is one containing

magnesia and bismuth as well as soda. Whatever theoretical objections may be offered to this mixture—and very many of the objections to certain alkalies are based entirely on theory—the following powder will be found to give excellent results:

Sodium bicarbonate
Magnesium carbonate (pond.)
Bismuth oxycarbonate aa ʒi

A teaspoonful is a suitable dose but almost any quantity may be taken, and the dose given must depend on the symptoms. It is best taken in suspension in soda water, or plain water, or in a little milk.

My own fancy is fairly equally distributed between Bisodol, Soda Mint tablets, Alkazane and Cal Bis nate, with a shade of preference for the first named. It must be admitted that the art of elegant prescribing has become the monopoly of the progressive pharmacist.

There is one other point to remember in this connection, and that is the futility of treating sthenic dyspepsia by any remedies directed to the stomach alone until we are quite certain that the cause of all the trouble does not lie in the transverse colon. When we recall the anatomical relations of this portion of the large intestine to the great curvature of the stomach, it is not difficult to believe that an irritation which has its source in the one will be readily communicated to the other, and I have repeatedly found, clinically, that a dyspepsia of the sthenic type which had resisted every combination

of alkali and sedative responded promptly to calomel and an enema properly administered

Let us now look at a typical case of **ASTHENIC DYSPEPSIA** and consider how it should be treated. The causes which may produce the condition are numerous, and some of them are remote. Setting aside those which are obvious such as convalescence from acute disease, it is well to remember that any thing which gives rise to a constant leakage of nervous force is peculiarly liable to set up an asthenic dyspepsia. Such conditions as worry, uncongenial surroundings, nasal obstruction and errors of refraction are among the most frequent, and it is safe to say that they are precisely those which are most commonly overlooked.

Let us then, take as our type a married but childless woman of thirty, who is not exactly unhappy, but who has no definite object in life. She is lackadaisical rather than melancholy, with a dull complexion and spare frame. Her tongue is clean, but pale and flabby, and some of her teeth are defective. *She complains of a dull pain in the chest, which passes through to the back.* The pain is always more or less present, but every meal, no matter whether it be large or small, intensifies it. She has very little appetite as a rule, though occasionally, when she forces herself to eat, it seems to improve after she has taken a few mouthfuls. She suffers from flatulence and palpitation, and is generally very constipated. Medicines may relieve the constipation,

but they generally leave the discomfort and the flatulence unaffected. On examining her abdomen we may find a movable kidney on the right side, and the muscles in the anterior abdominal wall will be found to be badly developed. She takes very little exercise, and protests that she never feels up to it.

The treatment of such a case is not difficult. Having freed the primæ viæ and attended to the other details already mentioned as suitable to both forms of the malady, we turn to the measures of active treatment. Having regard to what we know to be the essential condition in this case—namely, deficiency of HCl in the gastric juice—the first indication is, clearly to supply the deficiency. And in doing so we must be careful to give doses large enough to effect our purpose. The ordinary B P dose of $\mathfrak{m}\mathfrak{x}$ is altogether inadequate, the minimum dose which I employ is $\mathfrak{m}\mathfrak{xxv}$. This it is well to combine with strychnia and pepsin, as in the following

R.	Acid mur dil	.	$\mathfrak{m}\mathfrak{xxv}$
	Liq strychnin	.	$\mathfrak{m}\mathfrak{v}$
	Glyc pepsin.		$\mathfrak{z}\mathfrak{i}$.
	Aq menth pip		ad $\mathfrak{z}\mathfrak{ss}$
M.	Sig. Thrice daily immediately after food.		

To such a mixture may be added other drugs which the nature of the case may seem to demand. Quinine hydrochlorate, liq ferri mur, liq morph mur, and liq arsen. hydrochlor, are all of them

preparations which are frequently of great assistance in such cases, and all of them are quite compatible, not only with each other, but also with the other ingredients in the mixture. The most useful of them is perhaps the morphia salt. In cases of long standing, where the element of irritation is consequently very pronounced, the addition of \mathfrak{m}_x of the liq morph hydrochlor is invaluable. It soothes the mucosa and enables it to tolerate the stimulating effects of the HCl and strychnine, which in its absence are liable to cause so much local disturbance as to bring the patient back with the complaint that each dose of the medicine aggravates her sufferings. It is scarcely necessary to dwell upon the great importance of deleting this ingredient from the prescription as soon as there is any prospect of doing so with impunity.

For the constipation, which is generally so prominent a feature in asthenic dyspepsia, the use of the natural mineral waters is not only unobjectionable—it is strongly indicated. The presence in them of common salt, which we have seen to be a contra-indication in sthenic dyspepsia, is here an advantage. Most of these waters are best taken in the morning (fasting) and their effect is enhanced by the association with each dose of a tumblerful of hot water.

Such are the broad lines on which most cases of *functional dyspepsia* should be approached. But even in uncomplicated cases it is more easy to make

mistakes than the facts as above stated would lead one to expect

It not infrequently happens that where there is a serious difficulty in coming to a conclusion as to whether the case is one of sthenic dyspepsia or its opposite, it eventually turns out to be one which cannot properly speaking, be placed in either category, but is due to some underlying cause which must be discovered and removed before either acid or alkali will have the desired effect. A large percentage of these aberrant cases are the result of causes which, for the want of a better term, we must call nervous or neurotic. Common instances are afforded by men on the Stock Exchange who lead strenuous and even exhausting lives, who are exposed to periods of depression, varied by sudden volcanic explosions of excitement and panic, in whom the philosophic calm so necessary to good digestion is hardly ever obtainable except at a foreign health resort, where telephones cease from troubling and 'markets' are at rest. An instance drawn from another, though scarcely less familiar, sphere is presented by a young lady who once consulted me with all the signs of asthenic dyspepsia, with this notable point of dissimilarity from the typical picture, that her acid symptoms began to trouble her as soon as the food obtained access to her stomach. The ordinary prescriptions of bismuth, soda, and hydrocyanic acid, in combination with laxatives, produced no result, and so at her third visit I got her mother out of the room

and demanded to know the nature of the silent sorrow which I felt certain she was nourishing. It soon emerged in the shape of a secret engagement, which, should it leak out, would set the whole family by the ears. The combination of 15 grains of bromide of potassium and 2 minims of Fowler's solution in water three times a day after food, coupled with a little worldly-wise advice, cured that dyspepsia in a few days.

One of the most common causes of aberrant dyspepsias is that which, for some extraordinary reason, is the one most commonly overlooked. So common is it, indeed, that one feels almost ashamed to mention it. I mean dental caries. The teaching of the schools—and I say this without any implied reflection—tends to the too exclusive cultivation of the obscure in diagnosis and the heroic in treatment, with the sad result that the obvious and common sensical become overlooked. Thus it happens that patients are suspected to be suffering from cancer, gastric ulcer, œsophageal stricture, hepatic, pancreatic, and even splenic, disease, when a few visits to a competent dentist will cause the disappearance of all their symptoms. We talk glibly of the gastro intestinal toxins and their nefarious consequences, but we appear to think of them as lurking brigand like in the inaccessible *rugæ* of the small intestine, when their real habitat is the commonplace cave of a decay *ing molar*.

Another condition which is closely associated

with intractable dyspepsias is nasal obstruction. No one can pretend that a nasal obstruction due to adenoids is now in danger of being overlooked. The reverse is indeed the case, for adenoids are diagnosed, and even operated upon, in cases when they do not and never have existed. But that is by the way. **NASAL OBSTRUCTION** may be due to causes other than adenoids, and such obstruction is a very common provoker or maintainer of a dyspepsia which fails to conform to either of the two regular types, and remains obstinate to treatment by their appropriate remedies. Such was the case with a man whom I have known for many years, energetic hard working, capable, who at unequal intervals suffered from attacks of what both he and I agreed to call 'gouty dyspepsia'. It was distinctly of the sthenic type, and the worst discomforts connected with it scarcely ever failed to yield to bismuth and soda. Nevertheless, even when taking the medicine he was seldom entirely free from flatulence, eructations, heartburn, and constipation. The enemy was always on his flank, to fall upon him unmercifully should he commit any dietetic indiscretion, or in the event of any extra pressure of work, and on the occasion of any mental anxiety. Matters continued thus for several years until he was married. Not long after that event he came to see me with one of the usual attacks, and told me incidentally that his wife complained that he not infrequently snored, and that, in connection with this complaint on her part, he had

himself noticed that he always awoke with his mouth open. I then, for the first time, tested his nasal airway, and found that it was practically blocked on the right side by a combination of spurs and a deviated septum. *Since this condition was relieved, now over fifteen years ago he has never had any return of his trouble, or, if he has, it has been so slight in degree as to be readily amenable to ordinary treatment.* This may seem an inconclusive story, but both he and I are quite convinced that the cause of his former troubles was the obstruction in his nose—an opinion which on my part is strongly supported by other cases of a similar kind.

But if nasal obstruction is a common cause of obstinate digestive troubles, an even commoner cause is to be found in uncorrected errors of refraction. These errors give rise to eye strain, and eye strain in its turn provokes disturbances which are by no means limited to the eyes or their neighbourhood. The teaching of too many of the schools is to the effect that unless a person with a slight error of refraction complains of definite symptoms, then it is a work of supererogation to correct it. Such advice might be sound if all the symptoms of eye strain were easily recognisable as such, but they are not. A person who is the subject of eye strain may suffer from symptoms which neither he himself nor the vast majority of doctors would dream of referring to his vision. It is beginning to be recognised, perhaps that headaches supra-orbital and other local neuralgias, may be caused by

visual defects, but it is seldom even admitted that dyspeptic troubles and many obscure and indefinable, but very persistent, miseries, which are either carelessly or ignorantly labelled neurotic, neurasthenic, or hysterical, may be due to the same cause. This attitude is not altogether surprising when we remember that, in order to produce these results, it is essential that the defect should be slight in degree, should be one, that is, which the patient himself, by contracting his ciliary muscle, can adequately correct. The grosser errors do not cause these symptoms, for the reason that no amount of ciliary contraction being sufficient to correct them no effort is ever made. In the lesser degrees the effort, being successful is not only made, but is maintained during the whole of the waking hours. It is this maintenance of muscular effort which is the crux of the whole situation, for the ceaseless and illegitimate contraction of the ciliary muscle means an equally ceaseless and illegitimate expenditure of nervous energy. The 'electric power' intended for the motors in the various organs is all monopolized by the visual. There seems nothing to determine which of these organs will be the first to cry out that it is being starved of its due amount of nervous energy, and much of the trouble arises from the fact that its cry is almost invariably misunderstood and misinterpreted. In the case of the stomach the responsibility is generally placed upon the diet which is pared and whittled both in quantity and quality until the fare of King Nebuchadnezzar may

seem generous in comparison, while the organ itself is now soothed with papaveric caresses and anon chastised with Chilian scorpions, in the vain hope that it may thus be induced to make bricks without straw, for unless the nervous energy or the motive power, or whatever else it may be termed, is prevented from leaking out through the crevice of that minor refractive error, the stomach will be deprived of its due share of this energy, with the result that symptoms in very sooth, though symptoms of an aberrant and baffling type, will continue to afflict the unfortunate possessor of the organ, in spite of acid and alkali, and in spite, too, of their all too common and ridiculous association in the same mixture

So impressed have I been with this aspect of obstinate dyspepsias, that I now never fail to satisfy myself, at any rate in the case of a town dweller, and more especially in the case of a town dweller of over forty years of age, that an error of refraction is not at least a contributory cause in the case of troublesome indigestion which resists the ordinary remedies. If it is true, as I believe it to be, that the dentist cures more cases of indigestion than the physician it is equally true that in the same direction the refractionist is more potent than the therapist.

A great many dyspepsias which are confidently assigned to the rubbish heap labelled 'neurotic' are due to vaso motor disturbances, and may thus be held to justify the label. The disturbance may take the form of an undue vaso dilatation leading to a sub-

normal blood pressure, or to the opposite condition of undue vaso-constriction, causing a supernormal blood pressure. It may be the result of faulty distributions of pressure, for which errors of vascular tone are not primarily or even mainly responsible, as in the case of mitral disease. It is scarcely necessary to refer to such cases, because the person who fails to examine the heart in a case of dyspepsia will fail to examine it in a case of chorea, and is diagnostically past praying for. It is the vascular disturbances which own no such obvious cause which give rise to difficulties. In the case of undue general vaso dilatation the *modus operandi* is not difficult to follow. The patient is, so to speak, living under the constant influence of nitrite of amyl, his peripheral arteries are relaxed, and there is thus less blood available for the work of the internal organs. Consequently the appeal for more blood for digestive work on the part of the stomach is very inadequately responded to, and symptoms arise whose severity is in direct ratio with the degree of general vaso dilatation. A dyspepsia which is due to this state of matters may always be relieved by causing the patient to assume the recumbent posture immediately after a meal, but it can only be cured by removing the cause of the general vaso dilatation.

The opposite condition of unduly high blood pressure frequently, if not invariably, carries a gastric disturbance of some kind in its train.

Of the dyspepsias which result from high blood

pressure, the best instance is probably that which may be drawn from a consideration of what occurs at the menopause. The process of menstruation must be regarded as an excretory process, so that the commencement of the climacteric marks as a rule the commencement of a period of insufficient excretion. Add to this the consideration that the internal secretion of the ovary is believed on sufficient grounds, to be both vaso dilator and a toxin destroyer, and it is not surprising to find that at the 'gloaming of life' as the French poetically call it (*l'âge crépusculaire*) the blood distribution becomes deranged. The derangement shows itself as an elevation, which is always definite, and is not infrequently sufficiently alarming to warrant very active interference. For reasons into which it is impossible to enter here, this rise of pressure exercises a particularly unfavourable effect upon the vessels in the splanchnic area, and of these vessels it is, as one would expect, the gastric which show the greatest disturbance, with the result that dyspepsia, almost invariably of the sthenic type is one of the commonest of the manifestations of the menopause. Any attempt to treat such a dyspepsia without very special attention to the state of the blood pressure is to court certain failure, and in order to reduce that pressure we must bear in mind the above mentioned factors in its causation.

The fact that an excretory organ has been lost, and that its absence is not yet compensated for, will suggest gentle stimulation of the other emunctories,

of which the skin is in this connection by no means the least important. The absence of the internal secretion may be met by giving ovarian extract by the mouth a procedure which I believe to be of the greatest benefit. Ichthyol in 5 grain pills is also useful, and is perhaps the best of all drugs for combating the vague subjective discomforts which are apt to appear at this time. When the blood pressure is really high—i. e. over 200 mm Hg—and the above means fail to reduce it, I never hesitate to recommend venesection. This little operation has in several cases within my knowledge been the means of a 'miraculous' cure of very troublesome climacteric dyspepsias.

I feel that I must not leave this question without a reference to a form of dyspepsia which is associated with the menopause, but which has none of the characters of that just noticed. The processes peculiar to the climacteric affect different women differently, but they seldom fail to produce an instability of the nervous system, which in extreme cases proceeds to definite insanity. Short of this one of the forms which it assumes is an abnormal craving for sedatives, and if the craving is satisfied there is very apt to ensue an irritable condition of the stomach which gives rise to symptoms of indigestion. The sedative usually employed is, of course, alcohol, with regard to which it is necessary to remember that its excessive devotees fly to it not as a stimulant, but as a narcotic, and that it is narcotic only when taken in doses large

enough to act as an irritant on the gastric mucosa. There is a great deal of secret drinking at the time of the menopause, even among those who up to that period have been strictly temperate, so that the possibility of such a factor being at work in producing or maintaining a dyspepsia should not be forgotten.

There is a condition which closely simulates some of the manifestations of sthenic dyspepsia, and to which it seems desirable briefly to refer—namely, *angina pectoris*. Where sthenic dyspepsia is associated, as it not infrequently is, with some degree of gastric dilatation, symptoms resembling true angina are by no means uncommon. I have already referred to the fact that attacks of sneezing, dyspnoea, and the like, are in these cases very liable to occur in the early hours of the morning, and I have pointed out that these attacks are due to the irritation produced primarily by the excess of acid present at the end of digestion.

Now, it is not difficult to understand how the consequent flatulent distension of a somewhat dilated stomach will cause serious mechanical embarrassment to the heart, nor that, as a result, symptoms should ensue which are very suggestive of true angina. Add to this the fact that the patient frequently brings a history of pain in the chest evoked by exertion, which radiates down the arms, and the suspicion of angina is necessarily deepened. It is important to remember, therefore that all these symptoms are

entirely compatible with functional gastric disturbance, and to prevent unnecessary alarm to the patient and his friends, it is well to avoid all mention of the more serious condition until the less serious can be excluded

There are some facts which may aid us in arriving at a conclusion upon this point, which often presents difficulties not only because of the general resemblance between the symptoms, but also because an attack of flatulence may be the starting point of the first of a series of true anginal seizures. In the first place, then, it may be said that the constant presence of palpitation in association with the attacks is against the suspicion of angina and in favour of simple dyspepsia. In favour of dyspepsia, also, is the regular occurrence of the attacks in the early hours of the morning. When inquiry elicits that the pain on exertion occurs always after a meal and never when the stomach is empty, the fear of angina may be allowed to recede and it may be dismissed altogether if an antacid taken at a suitable interval after meals is successful in preventing the attacks.

The occurrence of such symptoms, however, even when they are definitely dyspeptic in origin, should not be too lightly regarded. They are often associated with giddiness and other phenomena which occasion alarm to patients, and if the cardio vascular condition be carefully examined as it should always be, it is seldom found to be in an entirely satisfactory condition.

The first thing to do, then, is to impress upon the patient the necessity for abstention from tobacco and meat foods, and the older the patient, and the more *sedentary his mode of life*, the more urgent does this necessity become. A general reduction of intake, in quantity as well as quality, is usually very desirable, and, in my experience, the meal which may be attacked with the best prospect of success is that which is taken at or about *middy*. *This should consist of milk, eggs, cheese, fruit, and vegetables—of anything, in fact, which has not been killed—and it should be free from alcohol.* So far as the meat at the evening meal is concerned, it is well to insist that it should be minimal in quantity, white rather than red, and preferably boiled, because it has been shown that boiled meats are much less liable to increase arterial tension than those which are otherwise treated.

To insure the adequate excretion of such toxins as may already be present, the bowels, skin, and kidneys must be stimulated. Mercury is the best agent to employ for the first of these purposes. About a grain of calomel should be given every night for a week, followed each morning by a saline, and the saline should be continued for at least a week longer. Turkish and hot air baths are useful for cutaneous stimulation, especially where they are combined with or followed by efficient massage. Even the ordinary hot bath, properly administered, is by no means without its value in this connection. For the stimulation of the kidneys the salts of potassium

are to be preferred, and of these the iodide and the citrate are the best. Ten grains of the citrate with 5 grains of the iodide should be added to the mixture of bismuth above prescribed, and the patient should be directed to drink freely of Evian water between meals. Another excellent renal evacuant is theobromine.

The importance of these measures resides in the fact that a sthenic dyspepsia which is accompanied by high blood pressure is but a symptom of an underlying condition whose continuance is fraught with the utmost gravity to the patient. There is, as a rule, no difficulty in curing the dyspepsia, but if we allow ourselves to rest satisfied with such an achievement, and shut our eyes to the possibilities of dangers ahead—dangers such as granular kidney and general arterio-sclerosis, the patient will have good cause to regret the promptitude and completeness of the relief from his dyspepsia which he has obtained at our hands. This is the condition to which the term ‘gouty dyspepsia’ has been applied, and if we use the term to denote a dyspepsia of the sthenic type, which is merely a manifestation of a general condition of goutiness, which general condition demands our attention even more urgently than the dyspepsia, then the term is altogether unobjectionable.

Symptoms are often confidently attributed to dyspepsia which are in reality due to *ovarian irritation*. The dyspepsia is generally of the asthenic type, and is usually accompanied by nausea, frequently by vomiting, which may be per

sistent, and occasionally by hæmatemesis. When a dyspepsia in a young woman proves intractable to the ordinary remedies, the probability is great that the cause will be found in the ovarian region. To the seeing eye there is something characteristic in the appearance of one who is suffering in this way. The appearance does not lend itself to verbal description, but, when once observed, it is not easily forgotten. Undue brightness of the conjunctivæ in a person whose temperature is normal is very suggestive of pelvic disturbance, but this by no means exhausts the elements of which the 'ovarian' look is composed. If the existence of this possible cause of indigestion be borne in mind, it is easy to verify our suspicions. Palpation over the ovarian regions will elicit tenderness, *sometimes very extreme, on one or both sides*. The best treatment consists in the repeated application of small blisters over the congested viscus combined with free purgation and the exhibition of bromide of potassium. This kind of dyspepsia is frequently referred to as 'nervous' or 'neurotic'. *It is not, of course, a dyspepsia at all. It is due to causes local to the pelvic organs and unless these causes, which not infrequently comprise leucorrhœa and menstrual disturbances, are suitably treated, the remedies offered to the stomach will be wholly ineffectual.*

There are two symptoms commonly associated with dyspepsia which, from the discomfort to which they may give rise, it is often necessary to treat during the interval which may have to elapse before their cause

can be removed the one is flatulence, the other is hiccough

In the presence of a dyspepsia which refuses to conform to any of the above clinical varieties, it is well to remember that chronic appendicitis not infrequently gives rise to symptoms which seem to the casual observer to be purely gastric. A F Hurst states that these symptoms are accompanied by constant discomfort or short attacks of pain in the right iliac fossa. 'Epigastric pain, which may radiate downwards to the umbilicus or below and occasionally to wards the right iliac fossa occurs after meals. The time of its onset is very irregular. Most commonly it occurs immediately after meals, but occasionally it is delayed for two to three hours. It is at the most only slightly relieved by alkalis, and food very rarely gives even momentary relief. It is aggravated by exercise to a greater extent than is the case with pain of gastric or duodenal ulcer. Nausea is common. Vomiting occurs occasionally—soon after food.'

But in order to get the vast subject of indigestion into its true perspective we must penetrate further into its causation than is customary in the textbooks. The fact that dyspepsia in one of its many forms, afflicts practically every member of every civilized community at one time or another and that its incidence among the uncivilized who have adhered to their primitive dietetic habits is negligible suggests that some dietetic error which is instinct in civilized

customs must be the cause And this error must obviously be connected with cookery

Except under circumstances to which I shall refer later, the simple foods, natural uncooked foods, dairy produce, fruits, and roots and herbs, do not cause indigestion. This is partly because they do not invite to surfeit, and largely because their chemical constitution has not been altered away from what Nature evidently intended the human stomach to deal with. It is now unfortunately an article of faith that all foods of what kind soever are unfit for human consumption until they have been subjected to some culinary process Even the kindly fruits of the earth, for which we render perfunctory thanks on Sundays, are so thoroughly baked, boiled, and stewed on week-days, as altogether to deprive them of their main nutritious merit—namely, vitamins and salts (see Chapter VII). *Cookery is an art which should be practised by artists, and reserved for artistic occasions The meddling, muddling, and emasculating of food perpetrated in its name by frowsy female fools is not only bad—it is mad.*

Primitive woman saw in every man a hunter who, as the result of hunting and fasting, was tired and hungry, and it became an instinct with her to feed him. Man now hunts with his brain, remaining for the most part seated; and he never fasts. Nevertheless, he is fed, not at the point of the bayonet truly, but at the point of the nagging tongue, fed to repulsive repletion with badly cooked foods, and suffers

in consequence from dyspepsia and hepatic disorders Woman's will to furnish food is by no means confined to the infant beneath her breast The babe she cannot coerce to plethora, the mate she can, and does

These two factors, bad cookery and compulsory surfeit, afford an explanation of the *modus operandi* of the so called toxicæmic indigestions, concerning which my friend, Dr Harry Campbell has written so convincingly He points out that even in normal digestion, albumoses, peptones, and other poisonous substances are formed in great abundance, and that these are normally prevented from entering the blood stream by some neutralizing or forestalling process When they and other substances alien to normal metabolism are formed in excess, as in redundancies of badly prepared foods we should expect them to be, the astonished and exhausted defensive processes, most of which are situated in the liver are rushed the poisons enter the blood stream and illness is the result The illness may be due to the direct effect of the poisons upon the tissues or it may come from microbes which have been awaiting this opportunity of pressing past a sleepy sentinel These dyspepsias of faulty digestion are subtle and elusive entities They are seldom or never characterized by what we are wont to regard as stomach symptoms, such as pain, flatulence, and distension The real digestion and assimilation of food takes place in the duodenum and upper reaches of the jejunum and we are now taught that regurgitation of material from these regions through the pylorus into the stomach

is a normal event. It is therefore obvious that if the bile is toxic in quality, the stomach will be irritated, and its functions of secretion and mobility will be seriously interfered with. Here we are face to face with a vicious circle which it is well to recognise. You cannot place the members of the digestive system in water tight compartments. Underlying all systems and compartments, bathing them all, is the circulating blood, which is not only a nutrient fluid, but an excretory, and unless the excretory work is fully and efficiently performed, the quality of the nutritive element is so gravely impaired as to give rise to disturbance in every department, and the digestive department is obviously no exception.

I have already said that toxæmic indigestion seldom calls attention to itself by what we usually understand by gastric symptoms, and that its manifestations are elusive. In order to get on to their trail we have to remember that a toxic blood stream shows itself in the various systems in the order of their complexity, in the nervous system first, in the glandular next, followed by the muscles and fibrous tissues. We may, then take it as certain that when a digestive toxæmia is in play the central nervous system will show signs of distress. Such signs are irritability, insomnia, drowsiness, mental depression, headache, and nervousness. Minor manifestations of these conditions are so common that they are assumed to fall as the gentle dew from heaven without any preventable cause, and when relief seems desirable, the victims appeal not to the pro-

fession but to the pharmacist or the proprietary medicine vendor. From both of these, temporary relief is usually forthcoming in the shape of a blue pill and Seidlitz powder, or something similar, but inasmuch as the underlying cause of surfeit and faulty feeding is in no way modified, the whole process begins all over again.

If a person eats moderately of the right foodstuffs, the resulting intestinal debris may be allowed a certain delay in its passage along the colon, without any fear of evil consequences. It is only when the debris is derived from food which is excessive in quantity and unassimilable in quality, which has, therefore, proved recalcitrant to the ordinary purifying metabolic processes, that any harm is to be feared. For the really important part of excretion we must look beyond the large intestine and remind ourselves of the excretory function of the liquor sanguinis. Is that all important fluid regularly and smoothly debarrassing itself of its waste matters, and are the sentinels of the portal circulation awake and alert? If these questions can be answered in the affirmative then all is well, if in the negative, then measures must be taken to redress the balance.

Among such measures there is one against which a word of warning is necessary. I mean intensive irrigation of the colon. In an admirable book on the 'Mechanics of the Digestive Tract, Professor Alvarez, of California University, discusses what he calls the 'gradient' of this tract, meaning by this expression

the run of the digestive tube from stomach to anus. He shows that irritation of the lower end of the tube is very liable to produce reverse peristalsis with all the symptoms of ordinary gastric dyspepsia, even to the superlatives of nausea and vomiting. He quotes Rolleston and Jex-Blake, who describe vomiting during rectal feeding, and other authorities. Let me, in confirmation, recount a case of my own. It was that of a young middle aged lady who, though she appeared to be in perfect health, nevertheless complained of really troublesome dyspepsia of the acid or sthenic type, with flatulence, heartburn, regurgitation, and the rest. To my great surprise, nor acids, nor alkalies, nor bromides, nor dieting, had the slightest effect in affording the urgently desired relief. To my oft repeated inquiries, on the subject of adequate alvine evacuation, she always assured me that she was perfectly regular, and that she was careful to empty herself every morning. But she did not tell me, what at length transpired almost by accident—namely, that the desired result was obtained by the daily use of a glycerine suppository. This, on general principles, I strongly advised her to stop. She did so, and the dyspepsia, which had distressed her and defeated me, melted away as if by magic.

In this connection it is well to remember that a chronic irritation in the neighbourhood of the anus, such as may be due to hæmorrhoids, fissure, or simple pruritus, by setting up such a measure of reversed peristalsis, will sometimes hold the key to a train of

dyspeptic symptoms which on the face of it appears to be purely gastric. It is, therefore, obvious that the possibility of provoking a dyspepsia should deter us from interfering with Alvarez's 'gradient' whether by colonic irrigation, glycerine suppositories, or by any other expedient which constantly applies a stimulus to the lower end of the tract, nor when confronted with a dyspepsia whose causation is obscure should we neglect to examine for any cause which might give rise to a chronic irritation of the anal region.

Colonic Irrigation

This must not be held to imply wholesale condemnation of colonic lavage, only its abuse. The methods which originated at Plombières are applied with undoubted benefit in a large variety of morbid conditions, most of which are expressions of auto toxæmia. However effectual intestinal lavage may be it is obviously merely a palliative form of treatment designed to rid the system of material which ought never to have been allowed to accumulate. If people were to live physiologically sensible lives, limiting the intake in quantity, cultivating simplicity in quality, and sustaining the output at a high level, there would be no necessity for these hydrodynamic assaults upon the large intestine.¹

Interference with the gradient may arise higher up in the tract and provoke a dyspepsia of reversed peristalsis. This was brought home to me by the case

¹ See 'Colonic Irrigation' by W. Kerr Russell (Actinic Press, 1932).

of an elderly gentleman, tall and very thin, whose indigestion I was unable to relieve by ordinary treatment. With the fear of a neoplasm ever before me, I had examined his abdomen at each visit, always with a negative result. Although fond of walking, he had hitherto always come to see me in his car. One day he came on foot, having walked about two miles. It was then that I found his enemy at home in the shape of a kidney in the right iliac fossa. When I had successfully taught him how to replace that kidney, his dyspepsia disappeared. It is therefore, obvious that any irritation in the tract may set up a reversed peristalsis, and give rise to a dyspepsia of very baffling symptomology.

Flatulenco.

The phenomenon of flatulence is an enigma. It was formerly very naturally supposed that the gas eructated from the mouth was generated by fermentation in the stomach, but it is obvious from the amount voided in most cases, and the rapidity with which one explosion follows another, that some agency at once more powerful and more active than fermentation must be at work. It is said by some that a large quantity of the expelled gas has found its way into the stomach by mere swallowing, that every time saliva is swallowed it is accompanied by a certain amount of atmospheric air, also that an appreciable quantity of air is enmeshed in ordinary food, especially in food which is insufficiently masticated. But allowing full measure to

such causative factors, there remains a large quantity of gas which cannot be thus accounted for. Hugh Maclean¹ and others suggest that the gastric mucosa actually secretes gas. The mucosa is known to absorb gas, and there is no sufficient reason for affirming that it is unable occasionally to reverse the process. A contribution to the subject is afforded by the action of Epsom salts taken internally. As Hurst has shown, when given in dessertspoonful doses of a saturated solution in the early morning fasting, sulphate of magnesium empties the gall bladder, and may later on produce a watery stool or two. But whether or not it should provoke this secondary result, it almost invariably gives rise to intestinal flatulence. It does the same, though in a less pronounced degree, when given in the ordinary dilute solution familiar to the out-patient department. Epsom salts are known to produce their laxative effect by increasing the fluid content of the bowel. This could only be brought about in one way—namely, by withdrawing fluid from the tissues—and if fluid can be withdrawn in this manner there is no reason why gases should not be withdrawn in the same manner. Certainly, the large amount of flatus which results from taking magnesium sulphate could not possibly be generated by fermentation. Surgeons say that they have seen the stomach suddenly distend with gas during an abdominal operation.

But the commonest cause by far of gaseous dis-

¹ Modern Medical Monographs

tension and eructation is the morbid swallowing of air, called *ærophagy*. Many people, including, perhaps, the majority of medical men, find it difficult to credit this, but there can be little doubt of its truth. In the most pronounced cases the air swallowing is hysterical, and is to that extent deliberate and intentional, but there are many cases in which the swallowing is quite unconscious. In the hysterical cases the air is usually gulped down, but before it reaches the stomach it is returned with violence. In the unintentional cases, it usually reaches as far as the stomach, ballooning it, and thus forcing the diaphragm upwards, with very unpleasant and sometimes even dangerous effects upon the heart. The heart is, however, more directly and, therefore, more seriously affected when the gas fails to reach the stomach and remains in the *œsophagus*. This may happen in the condition which Hurst has described as *achalasia*, or *absence of the normal relaxation of the lower œsophageal sphincter in swallowing*, so that both gases and food remain pent up in the lower *œsophagus*, causing pain and distension in the pre-cordial and substernal region. *Œsophageal flatulence* is far more common than is usually supposed. Harry Campbell is very insistent upon this point. He treats the matter with his customary lucidity in the following passage:

‘In order to get *œsophageal flatulence* one needs something more, I fancy, than relaxation of the lower *œsophageal sphincter*, such relaxation must occur in ordinary physiological belching. In *œsophageal flatu-*

lence the wind cannot be eructated, it remains in the gullet, distending it, and this may play havoc with an irritable heart, causing most alarming symptoms, which disappear immediately the wind—quite small in quantity—is expelled.

The causation of œsophageal flatulence he believes to be failure of the lower sphincter to remain closed when food or liquid is not being taken. This leads to regurgitation of the gas which normally occupies the upper part of the stomach. This œsophageal gas is very difficult to dislodge. One means of doing so is to make prolonged forced expirations with the glottis partly closed.

The successful treatment of ordinary gastric flatulence demands the intelligent co-operation of the patient. This is easily secured in the case of the unconscious offender, to whom it should be explained that he is the victim of a bad habit which he may overcome by attention to the following drill. After voiding the gas he should continue to expire forcibly through the mouth, and then, the mouth being kept firmly closed, he takes a long deep inspiration through the nose. J. C. Roux recommends that in all cases of œsophagy with eructation the patient should be made to keep a small cork between his teeth for half an hour after meals. This will prevent the act of deglutition, and quickly convinces the patient that it is indeed the swallowing of air which causes his trouble. If saliva is swallowed with undue frequency, as in dyspepsia it usually is, a certain amount of air is taken in with each

swallow This accounts very largely for the gastric flatulence which accompanies most acid gastric states Inasmuch as smoking stimulates the salivary glands, it will cause increased frequency in swallowing, and consequently augment the amount of air which is unconsciously taken into the gullet and stomach I have known the simple but by no means pleasant expedient of giving up smoking to cure many an extremely troublesome 'flatulent dyspepsia' upon which none of the usual remedies had had the slightest effect

Where the flatulence is intestinal, the treatment should be directed towards increasing peristalsis by means of *nux vomica* and *belladonna* The condition is generally associated with atony, and care should be taken not to administer drugs such as *magnesium sulphate*, which increase the fluid contents of the bowel without increasing peristalsis, unless the muscular action is simultaneously reinforced either by drugs or massage.

Of all the remedies directed to the relief of this condition, nothing has seemed to me to compare with oil of *cajuput* It should be given in doses of 2 minims, and may be combined in a pill with extract of *gentian*, or, when dissolved in a few drops of spirit, it can be added to any mixture In the flatulence which is so liable to develop after operations in the neighbourhood of the rectum this remedy is invaluable.

HICCOUGH is due to a sudden more or less violent

contraction of the diaphragm, and may be produced by irritation either in the immediate vicinity of the muscle or reflexly from a distance. An attack may last for a few minutes only or it may be protracted over several hours, and it may recur at intervals for weeks or even months. It is a common symptom of dyspepsia, more especially of athenic dyspepsia, but it may also be due to organic affections of the stomach and intestines, such as carcinoma and to hepatic disease, or appendicitis. It is a frequent accompaniment of the tympanites of typhoid fever. It may be excited reflexly by organic disease of the nervous system, such as meningitis, hydrocephalus, and intra cranial tumours. In functional diseases it is common, hysteria sudden shocks, and acute emotions providing a great many instances. It is not altogether unknown in epilepsy, and may occur in chorea. Certain constitutional conditions especially gout, diabetes, gouty nephritis and alcoholism seem to create a strong predisposition to its development. So much is this the case that the absence of other obvious cause should lead one to suspect the operation of such an agent.

Hiccough is very often associated with pregnancy, and it may complicate Graves disease or Addison's disease. When it appears in a person who is seriously ill, especially if it becomes persistent, it is a sign of evil omen, and should lead us to be very guarded in prognosis. Its most obvious mechanical cause is pressure on the phrenic nerve within the thorax, a condition which is most likely to

be produced by dilatation of the aorta, pericarditis or new growths

Persistent hiccough, from whatever cause arising, is very distressing, not only to the patient, but to those around him, and it is necessary to allay it as soon as possible. Various means to this end have been suggested from time to time, including medicines to be taken by the mouth and applications of a stimulating nature to the epigastrium. Of the latter, warmth and small mustard plasters are occasionally useful, and skilfully applied massage is frequently so. Of internal remedies, the best seems to be nitro glycerine in doses of $\frac{1}{16}$ of a grain upwards. It seems to act better when given in tablets than in the form of liq. trinitrini (2.5 minims), though I have used the latter with success. In either case the dose should be small and frequently repeated. Oil of turpentine is highly recommended by some. It should be given in doses of 10 minims mixed with mist amygdal.

Ext. ergot liquid in drachm doses, frequently repeated, has been very successful in some cases, and is always worth a trial where other things fail. One-minim doses of tinct. hyoscyamus, repeated every half hour, are said to do good. It is generally conceded that morphia, chloral bromide of potassium and even the inhalation of chloroform, are useless. Ether by the mouth, however, sometimes proves effectual. Traction on the tongue will sometimes produce the desired effect. Forcible holding of the breath in deep expiration is useful in slight cases, as is drinking a glass of water with both ears and nostrils closed. Of all these means,

however, nitro glycerine is the most likely to be successful

Musk (5 to 10 grains) in a pill with liquorice may also be tried. It is well spoken of by many, the only objection to its use being its great expense

ADDITIONAL FORMULÆ

Alkaline Mixture

R	Potass bicarb	}	℞ ℥i.
	Soda bicarb		
	Spts ammon. co.		℥iv
	Tr. rhel		℥i.
	Inf. calumbæ		ad ℥vi.
M.	Sig. Gas in water thrice daily, a quarter of an hour before food.		

Mixture for Flatulence

R	Menthol	gr 4
	Spts ammon. co.	℞ ℥i.
	Spts chlorof.	
M	Sig. One teaspoonful in water when required	

CHAPTER III.

CONSTIPATION, DIARRHŒA, VOMITING AND GIDDINESS

CONSTIPATION may be described as inadequate discharge of the contents of the lower bowel, a definition which assumes, of course, that there is material in the lower bowel which is improperly retained. This is a fact which seems to require emphasizing, for the reason that the term constipation is often made to include *infrequent defæcation in people with whom such infrequency is habitual and normal*. It is well to remember that the amount of *fæces* represents the excess of material consumed over what it is possible for the economy to utilize, and that consequently, if people took no more food than was necessary to their continued existence, the amount of *fæces* would be practically nil. There are persons—not very forceful persons perhaps but still perfectly healthy persons—who are very spare eaters, and who are, in addition, very careful eaters, in the sense that their food is thoroughly masticated, whose bowels do not act more than once a week. If we were to gauge the matter only by the standard of the practice of the

vast majority, this would seem absurdly and even dangerously inadequate and yet the infrequency of the discharge in such cases, as being in consonance with the small amount of intake, must be regarded as natural to the physiological working of the individual and as such, not lightly to be interfered with. These people are, however, not ordinary people, and though it is wise to remember not only their existence, but also the physiological lesson of which they present living examples, it would be foolish to accept them as a standard by which to measure the practice of the majority.

The ordinary individual does not regard his diet from the point of view of mere existence, he likes a balance on the right side, and is consequently in the habit of eating more, both in quality and quantity, than his system can possibly make use of. The excess in quality supplies him with a stimulant which he enjoys which indeed, he may even find necessary to the accomplishment of his daily work, the excess in quantity is a mere accident as it were, a concomitant of the excess in quality, which he takes because it is part and parcel of the things he likes. This excess in quantity consists of what has been called ballast—material, that is, which he cannot digest, because it is indigestible by nature material such as vegetable fibre and other constituents of food over which the digestive ferments exercise no dissolving influence. It is of the excess in quantity thus constituted that the *faeces* are for the most part

composed. Some of the excess in quality—a portion that is, of the material which is by nature digestible—also enters into their composition, especially when that excess is very conspicuous, but the discharged matter, as a rule, consists of material which has escaped digestion, not because the digestive organs are at fault, but because the material itself is insusceptible of solution and conversion into chyle. It is the inadequate discharge of this material which constitutes the condition which we are now considering.

It will be convenient to spend a moment in tracing the course of the excess in quality, and to inquire what becomes of the soluble material which is consumed, even though it is not wanted and cannot be utilized. Some of it doubtless becomes entangled in the indigestible residue, and under favourable conditions is harmlessly discharged. The greater portion, however, is metabolized and ultimately finds its way into the blood. Nature's processes being essentially thrifty, the excess is not immediately thrown away, it is stored for use on a rainy day, as it were, and is deposited as adipose tissue in various parts of the body. There is reason to believe that the process of this manufacture of fat, at any rate after a certain quantity has been deposited, is attended by by-products which exercise a very deleterious influence on the economy, and give rise to gouty, rheumatic, and kindred manifestations. The bearing of this upon the subject of constipation is this: that not only the original excess itself, but

also the by products, have infinitely less chance of escape if the fæces are unduly retained

Constipation may be either occasional or habitual. The former is seldom important, except in so far as it tends to lead to the latter, and thus it does more often on account of its injudicious treatment than for any reason inherent in the condition itself. From the fact that there are so many remedies for it on the market which are always given an extended trial before recourse is had to medical advice occasional constipation is a matter about which a doctor is not often consulted. He may, however, be consulted about conditions which are directly due to a loaded rectum, though the cause is unsuspected by the patient. Diarrhœa is one of these hæmorrhoids is another, but perhaps the most common are un-defined digestive disturbances. It is also well to remember that a loaded rectum may be the determining cause of an asthmatic attack a hysterical fit, an epileptic seizure, or of some even more obscure reflex manifestation, and that the nervous instability which these things denote will remain obdurate to treatment unless the simple but easily overlooked, cause be removed.

Three remedies stand pre-eminent in the treatment of occasional constipation of this sort, and with regard to them, it is well to state at once, that their use in habitual constipation is as futile and injurious as their employment in occasional constipation is desirable and successful. The first is castor

oil, the second calomel, and the third a soap-and-water enema. Castor oil is a simple aperient, which generally acts without griping and may safely be given to people of all ages. In order to avoid the taste, in so far as it is possible to do so, the oil should be given in milk, with which the rim of the glass has previously been wetted. If in the drinking care is exercised not to allow the oil to come into contact with the teeth—if, that is to say, the dose is 'tossed off'—the unpleasant taste is slight and transitory. Ringer says that an emulsion consisting of castor oil, $\frac{1}{2}$ ounce, fresh mucilage of acacia, 3 drachms, distilled water, 5 drachms, with, say, 8 drops of oil of peppermint, has very little taste.

Calomel is rightly considered the best purgative we possess, mainly because, in addition to being a purgative, it is an intestinal antiseptic of the highest value. The mistake which is commonly made in connection with it is that of giving it in large doses—i.e., 2-5 grains. It effects its purposes much more satisfactorily if given in quite small doses, say $\frac{1}{4}$ or $\frac{1}{2}$ grain, repeated every four hours until the bowels act. In this way it remains much longer in the intestinal canal, and its antiseptic properties have therefore an opportunity of exercising their beneficent effects. The importance of these properties in the treatment of occasional constipation does not seem to be realized, people appear to imagine that purgation is of itself an antiseptic measure. Such it may be, but often it is the reverse. Fæces which remain a

long time in contact with the colon become quiescent, but as soon as they are disturbed by a purgative their toxins are set free, and unless the purgative contains the means of counteracting the effect of these toxins, it may do harm. Calomel being the best of all intestinal antiseptics, and a hepatic stimulant to boot, it is infinitely the best agent for occasional purgation. As a rule, it is advisable to follow an evening dose of calomel with a morning dose of aperient water. I once heard a very good practical physician say that calomel acted best when combined with a small dose of grey powder and a little bicarbonate of soda. I have found the following a very good combination:

R	Hydrarg c cret	gr $\frac{1}{2}$
	Calomel	gr $\frac{1}{2}$
	Sod. bicarb	gr v

Taken half hour before dinner

Where it is desired to wash out the lower bowel without unduly stimulating the small intestine, or where the object is to hasten the action of a purgative given by the mouth, a soap and water enema is an excellent measure. For reasons just referred to however, it is always well to add an antiseptic to the enema, and one of the best for this purpose is oil of eucalyptus, 4 or 5 drops of which should be well agitated with the soap and water before administration.

There is one practical point in the giving of an enema to which I should like to direct attention. Everyone knows that the fluid should be about

100° F , and everyone is aware that the success of the operation depends upon its being performed very slowly, but few seem to realize either that the nozzle of the ordinary syringe is about the worst that could have been devised for its purpose, or that an efficient substitute is readily obtainable. The ordinary nozzle is too short, so that, in order to prevent the regurgitation of fluid, the disc which separates the nozzle from the tube has to be firmly pressed against the anus, a process which may give rise to considerable pain. This nozzle should, therefore, be removed and an ordinary No 12 gum elastic male catheter be put in its place. The bone rim at the end of the catheter is almost an exact fit for the rubber of the syringe, and will retain its place without wire or cord. The catheter thus attached, when warmed and oiled, makes an admirable nozzle. It is introduced without pain, it reaches well up to the sigmoid flexure, and, if the patient's pelvis is elevated as it should be, the fluid shows no tendency to regurgitate.

So much, then, for occasional constipation. We now pass to the consideration of the far more important subject of habitual constipation. Of this condition I would like to affirm at the outset that it is in the vast majority of people a malady which is eminently and easily curable, provided that it has not been long enough in existence to cause gross alteration in the anatomical relations of the parts, and the persistence of this alteration by the forma

tion of adhesions, kinks, and bands. It is not, as a rule, until middle age is reached that chronic constipation becomes incurable by medicinal means. And, although it is one of the commonest and most curable of maladies, it is, unfortunately, true that it is the one that is least often cured, that it is allowed to remain one of the chief scourges of our present civilization, vying even with alcohol and syphilis in the multiplicity of its consequences and their magnitude. That it can be made to rank with the two latter is due to the fact that, like them, it supplies a toxin to the blood, which so befouls all the tissues as to render them suitable breeding grounds for all kinds of microbes. The poison wears down the normal defences and allows the enemies to enter, to flourish, and abundantly to multiply.

Why it is that civilized man should be a constipated animal is a question that requires answering. And the answer is not, in truth, far to seek. It is this. Civilized man eats too much, thinks too much, and sits too much. Also he uses a water closet. Uncivilized man hunted his food, and thus justified its consumption. He frequently fasted, either actually or relatively. The hunting kept his abdominal muscles in good order, and he slept, as a child sleeps, prone and fatigued. Civilization, not altogether devoid of advantages, is, physiologically, full of drawbacks. The control of the lower centres by the higher is essential to social life, it is the pivot round which the community revolves, and the dis

gusting act of defæcation is very properly the first to be brought under the iron heel of propriety

Very early in the life of the child the control centres are invoked, and defæcation, which, in strictest physiology should occur after each meal—that is, at least thrice daily—is severely battened down until it reaches the level of a grudging diurnal concession to lower things. Then come social, scholastic, and other exigencies, the control is still further developed until at length the control attains such complete mastery that the tail restrains the whole dog. Such is the foundation, the super structure erects itself

This hypertrophic development of the control mechanism is the cause of all the trouble. In very early days when the child is still on the level of the *pot de chambre*, he is discouraged from using it too frequently. Then he is promoted to the water closet, to poise himself on the seat of which is to him all the more an acrobatic feat, because his instinct tells him that to fall backwards into that seemingly bottomless pit would be the end of all things. Then come the school days, and the necessity for regulating and still further controlling the excretory act. Boys are not encouraged to void their excreta, and girls are often positively discouraged. ‘You must not give way to those feelings, you must learn to control them.’ Alas! she proves all too apt a pupil. The control attains not only to mastery, but to despotism, and the healthy,

clean skinned adolescent rapidly becomes the sour smelling and sour tempered adult

If peradventure such a victim of custom and *les convenances* should at this point come in contact with a medical man who has not been impervious to the gospel according to Arbuthnot Lane, he may still find salvation. But even so, with reason and good advice to guide him, in comparison with the savage he finds himself handicapped. Many a time and oft he would like to, but cannot, letting 'I dare not' wait upon 'I would', and even when he can, he is still surrounded by enemies. The chief of these is the modern water-closet. Savage man perforce adopts the crouching attitude, normal and necessary to complete emptying of the lower bowel, and he has only to turn round to assure himself that the bowel is indeed empty, that the tribute of the descending colon is really sufficient to lighten the burden of the day's work, and that he is, so to speak, a free man. The beneficent psychic effect produced by the sight of a generous stool cannot be overestimated. It turns a melancholy man into a joyous one, it makes the timid courageous and the lazy energetic. Now, the modern water-closet, for all its sanitary perfection *vis à-vis* the community, is grossly defective *vis à-vis* the individual, because it deprives him of the mental stimulus of the uplifting vision afforded by the result of his peristaltic labours. Nor is this its only crime. That its fathomless depth should deprive man of the satis-

faction of ocular appreciation is bad, but it is almost worse that its height from the ground should paralyze his abdominal muscles. These muscles are little enough exercised by sedentary man, but when seated on the ordinary everyday water closet, he could not exercise them even if he would. A chair or a tall footstool may find him salvation by raising his knees, but if the basin itself were properly constructed, these adventitious and easily neglected aids would not be necessary. The Jennings, the Doultons, and the other practical sanitarians who have placed this generation under real obligations, should extend their energies to the standardization of a rational and physiological closet.

And what, in this connection, is meant by the term 'a sufficient evacuation'? The reply to this question given by a sergeant to a medical officer is worthy of record. 'What do you mean by a good rear?' The answer was prompt. 'Twice round the pan and pointed at both ends.' Such, no doubt, represents an occasionally attainable ideal to the man who pays his homage to *Cloacina* but once a day. But the man who knows, has an ideal at once more attainable and more workable. He solicits the goddess at least twice daily, and, careful though he be of the nature of his matutinal offering, it is to the vespertinal that he attaches the major importance. Then, freed from the press and distress which pursue him by day, he learns to lay his willing latria leisurely, leniently, and lavishly at her gracious feet.

On the question of the mechanism of normal defæcation, Sir Arthur Keith shed a flood of much needed light in his Cavendish Lecture¹. Therein he showed that the intestinal tract has several 'bundles' in many ways comparable to the bundles in the wall of the heart which originate the rhythmical contractions of that organ. The matter is best stated in Sir Arthur Keith's own words: 'In passing along the alimentary tract food is propelled through a series of zones or segments, each furnished with its own pacemaker and its own rhythmical contractions. In the heart we find two such zones, an auricular and a ventricular, in the normal heart the sino-auricular node is the master pacemaker. But a block or imperfection in conduction may occur between the two zones of the heart, with the result that "back pressure"—a venous stasis—is produced. Now, seeing the similarity between the cardiac and alimentary motor mechanisms, we do not seem overpresumptuous if we suppose that irregularities may occur in the nodal and conducting system of the alimentary canal—irregularities of the same kind as are known to occur in the heart. When such irregularities or blocks do occur, we should expect to find them at the points where one rhythmical zone or area passes into the succeeding zone. That is exactly what we do find. We find a block where the œsophagus joins the stomach, we find another where the gastric zone ends and the

¹ *Medical Press and Circular*, July 23, 1916.

duodenal begins, we find it where the duodenal zone passes into the jejunal, and where the jejuno iliac passes into the ileo colic. We find a block may occur at any point of passage from a lower to a higher rhythm. At several of these junctional points sphincters are situated, and I do not deny that the mechanism of such sphincters may become disordered and cause alimentary stasis, but it will probably be found that a disturbance in the action of a sphincter is secondary to a disturbance in the excitability and action of the whole rhythmical zone or segment to which it belongs.

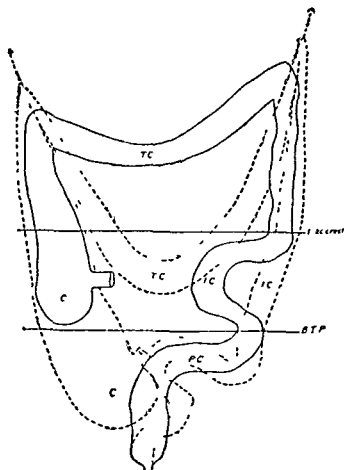
'Further, it is clear that to obtain an orderly propulsion of the food along the whole length of the alimentary canal those various rhythmical zones must be closely co ordinated in their action, and there is a growing body of evidence both experimental and clinical, that points to a very close co ordination by means of a complicated system of reflexes. Disturbance in any one segment upsets the rhythm in all the segments. Bayliss and Starling observed that distension of the duodenum inhibited the action of the ileum, surgeons are familiar with the fact that a duodenal disturbance upsets the rhythm of the stomach. From the facts already mentioned it is easy to see that disturbance in the excitability and rhythm of the pacemaker of the cæcum will be reflected to the lower ileum. One can understand on the hypothesis I place before you, how stasis in the great bowel may be followed

by ileal stasis, duodenal or gastric stasis, or how a disturbance of the conductivity or excitability of any of the rhythmical zone may ultimately give rise to stasis in all '

The pathology of the physiological position thus expounded is supplied by Sir William Arbuthnot Lane in his book on 'Chronic Intestinal Stasis,'¹ a work which should be carefully studied by anyone who desires to have clear ideas on this all important question. Briefly stated, the sequence of events is as follows. The erect posture of man, which tends to displace the abdominal viscera downwards and backwards into the true pelvis, in perfectly normal conditions is counterbalanced or compensated by the prone position during sleep, which tends to return these same viscera upwards and forwards away from the true pelvis. Thus, the drainage which is impeded during the day, becomes free and active during the night. If the counterbalance or compensation should fail from any cause, such as a faulty position during repose changes occur. These changes, originally designed for the purpose of maintaining the viscera in their places, ultimately reach such a point of development as to defeat their own ends. By the kinking of the tube and the consequent narrowing of its lumen, what was intended as a support becomes an obstruction, much as a lead pipe may be seen to kink over its narrow bracket when exposed to heat. The accompanying diagram,

¹ Adlard and Sons 1915

reproduced from Sir William Arbuthnot Lane's book, shows very clearly the end results of the pro-



cess which he describes in detail. I say end results advisedly, for it must be borne in mind that the complete monstrosity which the diagram represents

usually takes about forty years to develop. The physician is concerned with the matter at a very much earlier stage, and it is entirely due to the brilliant pioneer work of Sir William Arbuthnot Lane—work for which his own and future generations cannot sufficiently honour him—that we are in a position to forestall and prevent the banding and kinking which impose such untold protean miseries upon their victims.

Inasmuch as our ideas of the normal are necessarily based upon the majority, and inasmuch as intestinal stasis, in some degree, is a condition which afflicts the vast majority, it is no wonder that its symptoms and physical signs escaped recognition until Sir William Arbuthnot Lane came with clear vision to rescue humanity from its own cesspool. There are people, and they are many, and most of them are unconscious delinquents, who hoard their fæces as a miser hoards his gold. A certain amount is daily and laboriously given to the world, but, in comparison to what remains behind, the amount is mean, physiologically insufficient, and therapeutically ineffectual. When young these people display their avarice by their earthy, oily, and pimply faces. In middle age they become anæmic, scant of breath, exiguous of shin, and abdominally opulent. Old age they never reach, or, reaching it, they afford examples of the slippered petulant pantaloon whom Shakespeare has rendered classical. Intestinal stasis was not it is true, invented by Arbuthnot Lane, for it

was known to Galen and Celsus, but he rediscovered it, and his originality and fearlessness have imposed its cure as a necessary condition precedent to all other cures. The therapist who now neglects it, thus proclaims his own sad stasis in matters scientific.

It is but a slight exaggeration to declare that every chronic disease is a symptom of chronic constipation. It is no exaggeration whatever to say that chronic constipation is at least a contributory cause in all chronic disease. At the back of the microbe there is to be sought the cause of the microbe, and this cause in every case is the state of the soil which permits him to flourish. Such a state of soil is described as a chronic auto-intoxication, which is only another way of saying that the drainage system is defective. And when the drainage system is defective to the point of there being a cesspool under the floor of the gastric dining room, the powers of resistance are so reduced that the microbe comes and takes possession with easy and stupefying assurance. There are many diseases about which long articles and even large volumes have been written—pyorrhœa alveolaris and rheumatoid arthritis, for example—and many dyscrasias—the gouty, the glandular, the acid, and the migrainous, to wit—which are no more than symptoms of chronic intestinal stasis. The percolations from the cesspool have permeated the soil, and the whole carcass becomes inhabited by the fauna and flora of de-

composition and disease. The particular members of these hostile groups which are destined to lead the invasion, and the particular points selected for their ultimate development, are decided by considerations which are at present beyond us.

This general result, the toxæmic, of chronic constipation is not sufficiently insisted upon. The symptoms usually cited are correct enough in their way, but they are too local and too topical, and therefore too singular. The earthy complexion, the cold extremities, the subfæcal odour of the axillæ, the emaciation, the general malaise, Lane's cystic breast, and the like, are very real manifestations of the poisoning, but it is to be remembered that the same poisoning forms the foundation upon which actual diseases are built. Such are rheumatoid and other forms of arthritis, exophthalmic and other forms of goitre, 'borderland' and other functional nervous manifestations, menstrual disturbances and various gynecological conditions, and others too numerous to mention. The existence of a chronic disease should thus create a suspicion in our minds that its existence and continuance are rendered possible by insufficient intestinal drainage. The individual symptoms just referred to will always help in this direction, but even in connection with these it must be remembered that they must be looked for, none are so salient but that they easily escape the superficial observer.

From the foregoing it follows that in treating

chronic constipation we are treating not only a toxic blood state, but we are also treating many so-called diseases, and that many so called diseases cannot be satisfactorily treated unless and until the constipation and the consequent blood state have been successfully dealt with. This does not mean that the said diseases do not require any additional form of treatment for the alleviation of the symptoms which form the complex of each. They do. But it does mean that unless the constipation and the toxæmia are removed, treatment directed to the more obvious manifestations will be attended by a very fleeting improvement. The textbook therapeutics of such diseases generally includes the phrase 'attend to the general health'. This should be extended so as to read 'attend to the suitability of the intake and the sufficiency of the drainage'.

Thus, in the treatment of intestinal stasis there are two main indications. The first is to discover and remove the cause of the stasis, the second, to nullify the toxæmia.

There are several drugs whose claim to act as intestinal disinfectants is generally admitted, and there are many more whose obscure but beneficial effect upon the organism generally is probably due to an underlying disinfectant power either in the intestines themselves or in the blood stream. Of the latter, quinine may be taken as example. Of the former, thymol has already been mentioned. Thymol is an intestinal antiseptic of undoubted

potency, which, if certain precautions are observed may be given in much larger doses than those suggested by the Pharmacopœia ($\frac{1}{2}$ to 4 grains) Inasmuch as it is very soluble, not only in paraffin oil, but in castor oil, olive oil, and oil of turpentine, these oils should not be given at the same time as the thymol It is also very soluble in alcohol, ether, and chloroform, so that mixtures which contain these should be avoided If these facts are borne in mind, thymol in powder, enclosed in a capsule, which may advantageously be keratinized, can safely be given in 10 grain doses, twice or even three times daily Thus given, it acts not only as a disinfectant of the intestinal canal, but as a very powerful deodorant of the fæces To do any real good it must be given over long periods of time, say a month or six weeks

The salicylates, especially in the form of salol (salicylic ester of phenyl), quinine salicylate, and bismuth salicylate, have a considerable reputation with some physicians as efficient intestinal antiseptics I cannot, however, share in the enthusiasm which is sometimes expressed for them In my hands their results have been disappointing The same may be said of beta naphthol, of which many speak in high praise, it has never succeeded in convincing me of its efficacy With its cousin germane, benzo-naphthol, it is far otherwise I regard this drug as second to none in its power of disinfecting the intestinal tract and the blood-

stream It may be given in doses of 10 to 15 grains three times daily as a tabloid (grs v), or in a cachet Unlike thymol, no special caution is necessary in prescribing it, and unlike beta naphthol itself, it does not seem to have any tendency, when given over long periods, to derange the kidneys

One of the best of the intestinal disinfectants is mercury, but as mercury in all its forms is something more than a disinfectant its use is necessarily limited by its chief physiological effects, it is consequently outside the present category

In the objection which is sometimes urged against chemical intestinal disinfectants it must be admitted that there is much force The objection points out that an efficient bactericide will kill not only the enemy microbes, but those friendly ones upon whose beneficent activities Metchnikoff insisted with such curious results This is a pertinent criticism which it would be more easy than it is to dismiss as mere theory, if the results of our present antiseptic therapy were always clinically satisfactory In certain cases these chemical disinfectants succeed admirably, but in others they fail, and their failure reminds us that the real intestinal antiseptic is to be found in the intestine itself If we could but evoke an increased activity of the natural defences, the necessity for such aids as thymol and benzonaphthol would disappear Attempts are already being made in this direction by administering hormones It is still too early to write with confidence

on the measure of success which is to be expected from such endeavours, but the principle is undoubtedly sound

We pass now to the consideration of the measures at our disposal for overcoming the stasis itself. Amongst the most important of these is the ensuring of proper support for the abdominal viscera by toning and if necessary re educating the muscles which form the anterior abdominal wall. It is not necessary here to consider the matter further than by saying that massage and properly directed exercises are capable of doing a great deal of good in this direction. Mechanical supports are very useful adjuncts even to well developed abdominal muscles especially after middle age but the supports should be conceived on sound anatomical principles and carefully executed so as really to fit the individual patient. A great many of the abdominal belts upon the market are worse than useless inasmuch as by constricting the area above the umbilicus they encourage the viscera in that fatal descent into the pelvis which is so surely productive of kinks and bands. Many a good corsetiere is capable of making a well fitting abdominal support, the so called straight fronted stay, being very serviceable to this end. Messrs Walton and Curtis make an excellent contrivance for this purpose the original lines of which were I believe, suggested by Sir Arbuthnot Lane himself.

It is too often assumed that the evil effects of stasis

are due solely to absorption from the large intestine, an erroneous assumption which dictated the heroic lavage of the colon which is known as the Plombières treatment. I am very far from saying that such treatment is altogether undesirable. I believe, on the contrary, that in cases where the stasis is really in the colon, douching or lavage is capable of doing a great deal of good, especially as a measure preparatory to treatment at once more sustained and more gentle. That the stasis is often, perhaps most often, in the small intestine is obvious both from a study of Lane's kinks and the consideration of Keith's motors. In the bismuth meal and the radiogram we are now fortunately possessed of a certain means of diagnosis on this very important point, and where such means are available they should always be appealed to. The two things which have most retarded the scientific study of chronic constipation are the universality of the ailment and the superficial ease with which it may be temporarily overcome.

We do not yet know enough about Keith's motors and the causes which disorder them to enable us to deal effectively with their derangement, but we do know that certain drugs affect certain areas by preference. Mercury, podophyllin and euonymin, for example, exercise their influence mainly in the duodenum, the sulphates of sodium and magnesium are active primarily in the ileum, colocynth chiefly in the large intestine, and aloes almost exclusively in the rectum. Most of the other purgatives which

we employ—for example, cascara, rhubarb, and jalap—affect more than one area, and a great many produce their results as stimulants of the whole gastro intestinal tract, bringing all or most of the motors within their influence. It is a curious and senseless and wholly unscientific parrot cry which invests *nux vomica* with any power as a purgative.

The search for a drug which will at once relieve constipation and abolish a tendency thereto is like the search for the elixir of life or the philosopher's stone. A little consideration will show that such a drug does not and cannot exist. For under what euphemism soever their real effect may be concealed, whether they be called aperients, laxatives, hydrogogues, purgatives, cathartics, cholagogues, or what not, every one of them is essentially an irritant poison with a selective action on the alimentary tract or some part thereof, which, when taken habitually, provokes the production of antibodies which will ultimately more or less completely nullify its action. The discovery of cascara gave some encouragement to the futile search for an ideal drug, but anyone with experience of its properties must realize that its merit resides solely in the fact that it produces antibodies more slowly and less vigorously than most others. In the long run the antibodies are duly evoked, and the dose of cascara must be increased. Until further investigation succeeds in throwing more light upon the whole question, we are thus reduced to handling such

aperients as we possess, so that no one of them is employed to the point of producing its antibodies. This means that in the treatment of chronic constipation, in addition to paraffin oil and benzo naphthol, we must ring the changes on various laxative drugs. It is my own practice to give a list of seven, one for each day in the week, with strict injunctions to the patient that, vary them as he will, he is not to take any one for more than two days in succession. In otherwise healthy adults my list always includes cascara, one mercurial and one saline, in children, aloin, in old people, belladonna. A very good pill which figures in most of my lists is one of whose composition I am ignorant—Pil Savonneuse (Boissy).

In the matter of salines, it is to be remembered that these are less irritant than most other laxatives, and are much less likely to evoke the neutralizing antibodies. They act by attracting fluid into the intestine, and thus aid in flushing out the back waters. Salines have thus many advantages over most other laxatives. I once heard a very experienced proctologist say that the best of all laxatives was the California Syrup of Figs. This, I am told, is a preparation of senna.

In combating the deeply rooted prejudice against the habitual taking of laxatives, begotten of the excesses of our forefathers, the profession of to day has a long and stubborn furrow to plough. Nothing is more common than for patients to object to any

treatment suggested for chronic constipation on the grounds that they do not want to get into the habit of taking drugs. That is academically a praise worthy attitude, the reply to which is that it is much better to take drugs than to be a walking cess pool. The most difficult people to persuade are those who are satisfied with a small but perfectly regular daily motion. They will not believe that there is a residue, the absorption of whose toxins is the cause of the symptoms arising in diverse places, most of them remote from the abdomen. Until the profession succeeds in overcoming these prejudices and obstinacies, the most potent cause of what may be called out patient maladies will continue to flourish with destructive security.

DIARRHŒA.—The first thing we have to remember about this condition is that, except in children, it cannot be considered as a disease *per se*. In the latter it must always be regarded as much more than merely symptomatic, and as in them the condition is liable to assume an aspect of the highest importance and the utmost gravity, which is adequately dealt with in most textbooks, I do not propose to refer to it, beyond calling attention to a very masterly presentation of the subject to be found in Dr Edmund Cautley's work on the "Diseases of Infants and Children." The same author contributed a paper entitled "Summer Diarrhœa" to the *Medical Press and Circular*. It is one of the most practical and helpful papers I remember to have read upon a very

common and little understood malady. In view of the latter day campaign for the preservation of infant and child life, it behoves the medical man to be thoroughly well equipped in the treatment of such diseases as show a high infant mortality. Summer diarrhoea is one of these. It requires prompt and thoroughly instructed treatment, with the details of which the young practitioner should make himself familiar. This is the more necessary because he will frequently encounter decided opposition from ignorant mothers and nurses who are quite unable to appreciate the necessity for the measures which must be insisted on.

Diarrhoea in the adult is an expression of an intestinal irritation. And in connection with this irritation we have to remember that what will irritate one person will fail to produce any effect upon another—or, for that matter, upon the same person under different conditions. The diarrhoea of the neurotic or neurasthenic person, for example, is an instance of the result of very minute stimuli upon a hypersensitive organism, and the proper way of treating it is not by attempts to remove the irritation, but by lessening the reactive power of the individual. There are a good many people who go about in mortal dread of being 'taken short' at inconvenient times and places—*e.g.*, in church, or on a long railway journey, and their nervousness under such conditions supplies the stimulus necessary for the production of the very condition which they dread. In such cases the

exhibition of the bromides and other measures, physical and moral, calculated to strengthen the nervous equilibrium, constitutes the proper line of treatment. Astringents, especially opiates, should be avoided.

Diarrhœa may be salutary. This is worth remembering, especially in view of the fact that the condition is, to say the least of it, very inconvenient, and that the subjects of it are consequently very insistent in demanding relief. It is salutary when, as in alcoholism and kidney disease, the bowels are called upon to do more of the excretory work of the body than legitimately falls to their share. When such a state of matters is to be suspected the right treatment consists in calling upon the other emunctories, especially the skin, to undertake their share of the burden, and by suitable diet to lessen as much as possible the manufacture of the offending material. A hot bath—hot enough, that is, to produce free diaphoresis—is an expedient which is too much neglected in the treatment of this condition. The warmth is very grateful to the patient, and the diaphoresis helps to relieve the work of the intestines. In this way the diarrhœa is checked, while the discharge of the offending material is not interfered with.

The commonest cause of diarrhœa, however, is the presence of irritating matter in the intestinal canal itself. Here the condition is not salutary, because it is as a rule futile. The irritant, whatever may be its nature, produces increased peristalsis below the point

at which it is situated, so that the resulting diarrhœa tends to exhaust the patient, without in any way contributing to the removal of the cause. In such cases, which constitute the majority of those with which we have to deal, an efficient evacuant (say $\frac{1}{2}$ ounce to 1 ounce of castor oil) which will act on the intestine from above the site of the irritant should be given at once. It seems needful to dwell upon the necessity for this, because I find that diarrhœa is so often treated by astringents without any preliminary evacuant—a procedure which is as unscientific as it is useless. Slight looseness of the bowels may occasionally be successfully so treated, but we must remember that household remedies have invariably been tried before a case of diarrhœa reaches a doctor, and that household remedies consist of astringents. To neglect the evacuant, therefore, is to do wrong both scientifically and tactically, the effects of so doing are to prolong the sufferings of the patient and to bring discredit upon the practitioner.

When the bowels have been cleared of the offending matter, astringents may be given with every confidence. In these it is generally wise to include opium, always supposing, of course, that the kidneys are in a healthy condition. Opium not only assists the action of the astringents, but it affords rest to the bowel and soothes the irritated nervous system. The combination which I have found most efficacious for this purpose is as follows

B.	Tr. opi	...	...	...	...	℥i
	Sp ammon. co	...	...	..	...	℥xxx.
	Ess menth pip.	...	...	...	...	℥xx.
	Tr catechu	...	...	...	...	ʒi.
	Aquam	...	...	.	..	ad ʒi

M. Sig : Every four hours.

Preceded by a dose of castor oil and a hot bath, I have never known this mixture fail in affording relief in diarrhœa when the condition was caused by a simple as opposed to a specific irritant. Diet is, of course an important matter in guiding the malady to a satisfactory conclusion, but the dietetic management consists more in the application of rational general principles than in the prescription of any particular régime. It is advisable to remind the patient that food, when well masticated and insalivated, leaves very little for the irritated intestines to do, and that the more thorough these processes are the more quickly will the irritation subside. Milk is probably the best food for those with whom it agrees. When all is said, however, the fact remains that the most suitable régime in diarrhœa is fasting. Even the blandest food produces a certain measure of stimulation, and what the intestinal tract requires is not stimulation, but rest.

Diarrhœa is apt to appear as an early event in two complaints, of whose existence it is occasionally necessary to remind ourselves—namely, Graves' disease and Addison's disease. The latter is not very common, perhaps, but when it does occur it is well for

all parties that it should be recognised early To this end it should always present itself as a possible explanation of what may appear to be an ordinary attack of diarrhœa. The same is true of Graves' disease This is far more common than Addison's disease, and as its only other symptom may be tachycardia we should be on our guard against dismissing as a little 'intestinal irritation' a case which may ultimately progress to thyroid enlargement and exophthalmos Tannigen (di acetyl tannin) is a good symptomatic astringent It should be given in a cachet (10 grains) three times a day

Fissure of the anus and stricture of the rectum often lead to diarrhœa by causing accumulation of fæces Persistent diarrhœa in a person over forty should always lead to a careful examination of the rectum, as malignant disease is, under such circumstances, probably the commonest of all causes

A group of symptoms variously designated, but now usually recognised under the title of *mucous colitis*, may be associated either with constipation or diarrhœa As a rule, the one alternates with the other, but it is generally the diarrhœa which brings the patient under observation There is always mucus in the stools, sometimes in very large quantities, and it is occasionally sufficiently organized to resemble shreds of membrane (muco membranous colitis) Not infrequently blood is also present The diarrhœa, which is accompanied by a considerable degree of pain, is unaffected by the ordinary remedies, and leads

rapidly to emaciation and the development of symptoms of 'nervousness'. So much is this the case that mucous colitis has been considered a morbid entity, and has been described as a neurosis. Against this facile view of the matter and the mistaken therapy which is its logical outcome, it seems necessary to enter a warning. Lockhart Mummery has shown that mucous colitis is merely a symptom, that it may be due to a great variety of causes, amongst which may be mentioned malignant disease, ulcers, adhesions, retroflexed uterus and the apparently ubiquitous and inevitable appendicitis. The symptom may, however, be due to a simple catarrhal inflammation of the large intestine, more especially of the region of the sigmoid flexure (resembling the catarrhal inflammation so commonly observed in the upper air passages), which has been induced by the chronic irritation of masses of undischarged faecal matter. When due to such a condition, the treatment is both simple and efficacious, and, like that of bronchial catarrhs, it consists in the application first of sedatives and subsequently of astringents. The best way of applying sedation is to irrigate the bowel with the best lucca oil. Inferior oils are useless, because they act as irritants instead of sedatives. The oil, previously warmed should be introduced very slowly by a douche (not by a syringe) with a catheter nozzle (see p 111). The patient lies on his *right* side, with the hips well raised and all his muscles relaxed, the douche can is placed at a moderate

elevation (not more than 2 feet above the level of the anus), and the oil is allowed to flow gently in. The degree of inflammatory catarrh can to some extent be gauged by the length of time during which the patient is able to retain the pint of fluid thus introduced. At first he may wish to return it at once but he must be encouraged to bear with it. As improvement sets in, the irritability of the mucosa lessens and the oil is easily retained for several hours at a time. When tolerance is established to the point of permitting the retention of the oil for ten hours, which generally occurs in the course of a week, an astringent fluid, such as argyrol (1 per cent) or potassium permanganate (1 in 2,000) may be substituted after which complete subsidence of the symptoms quickly follows. It is needless to say that during this treatment the patient should be confined to bed, nor should it be necessary to emphasize the necessity for the utmost patience and skill in securing that the injected fluid shall irrigate the whole length of the large intestine. If this line of treatment does not succeed in affording prompt and permanent relief, it is practically certain that the colitis is due to some cause more serious than a simple inflammatory catarrh of the mucosa. An examination by means of the sigmoidoscope should therefore be advised.

VOMITING, like diarrhoea, usually appears as a symptom of some definite underlying morbid condition, but, like diarrhoea, it also occurs as an apparently separate clinical entity, for which no

cause can be discovered beyond an undue irritability either of the stomach itself or of the vomiting centre in the brain. It is a common symptom of gastric disorders, and in searching for a cause, one's thoughts naturally turn primarily towards the stomach. It should always be remembered, however that there are two serious conditions with which it is often associated, and whose existence is liable to be overlooked if we make the mistake of considering too exclusively the gastric origin of the symptom. One is intracranial disease, the other is renal disease. In both these conditions the sickness may easily be the only obvious symptom, and, unless we make it a rule always to examine the urine and the fundus oculi in every case of vomiting for which no obvious explanation is forthcoming, we lay ourselves open to the risk of very grave errors of diagnosis.

Cerebral vomiting is generally accompanied by headache and optic neuritis, and careful search for physical signs in the nervous system will nearly always bring to light some other facts which point to its true origin. It is a common and very disastrous mistake to label as hysterical, sickness which is due to some serious intracranial lesion. Vomiting does, of course occur in hysteria but, then, hysterical or 'functional' manifestations are of very frequent occurrence in almost all intracranial conditions so that it is never safe to make a diagnosis of hysteria until structural disease can be positively excluded. In children vomiting is commonly an early event in meningitis.

Vomiting may be the first event to call attention to the existence of *kidney disease*, and negligence to examine the urine may thus be fraught with very serious consequences, for if we do not realize that the sickness is of renal origin, not only shall we fail to treat the disease by appropriate means, but in our endeavours to stop the vomiting we may have recourse to measures, such as the giving of morphia, which may do a great deal of harm. Moreover, it is well to remember that absence of albumin does not necessarily exclude the possibility of disease of the kidneys. Where there is any suspicion of renal responsibility the urine should be subjected to laboratory methods, and the cardio vascular system carefully investigated.

Other common causes of vomiting are *hernia*, *pregnancy*, *whooping cough*, and *phthisis*. It is of course, of the utmost importance to bear the existence of these possibilities in mind, so that they may not elude us. Our mistakes are less often due to ignorance than to the forgetfulness or negligence begotten of hurry. A form of vomiting which is characteristic enough to lead one immediately to suspect its true cause is that which heralds the invasion of an *acute specific disease*. Here the sickness is not accompanied either by nausea or retching, but the contents of the stomach are suddenly, completely, and unexpectedly expelled without pain or discomfort. Except where an emetic has been given, this kind of sickness is very suggestive of the onset of an acute fever of some sort.

The vomiting which occurs in association with the condition variously called *sick headache* and bilious headache is liable to be very troublesome, more especially if the true nature of the underlying condition is not recognised and treated. This matter is fully discussed in the next chapter, but I may say here that the name bilious, as applied to these attacks, is particularly unfortunate, for the reason that it suggests treatment by mercurial and other cholagogue cathartics, than which as a rule nothing can be more harmful. These attacks are in a very large number of cases due to ocular refractive errors and other peripheral irritants, and unless the patient is properly fitted with correcting glasses or the irritation otherwise subdued, drugs such as phenacetin, though they may give relief at the time, contribute nothing whatever to the prevention and ultimate cessation of the attacks.

The influence of refractive errors in the causation of vomiting, apart altogether from headache, does not seem to be sufficiently appreciated. It is by no means uncommon for a person whose error—say a low degree of astigmatism—has been corrected, and, before he has accustomed himself to the use of the glasses, to complain that the glasses cause nausea, and even attacks of vomiting. These attacks will often lead to the discontinuance of the glasses. This is a very foolish procedure, into the result of which it is impossible here to enter. What it seems necessary to insist upon is that nausea, vomiting, and a host of other

symptoms, often rightly attributed to neurasthenia, but more often wrongly relegated to hysteria, are frequently due to uncorrected errors of refraction, and that, unless these errors are corrected, the symptoms will persist. Eyestrain¹ is responsible for an enormous amount of ill defined nervous troubles of modern life, and the practice of some ophthalmologists of dismissing low degrees of error as unimportant is responsible for much of the futility in the treatment of these troubles.

Sea sickness is sometimes traceable to the ocular apparatus. The landsman is unable, because he is unaccustomed, to accommodate his visual machinery to the rapid and sudden changes of movement caused by a rough or choppy sea, and his efforts to bring about this accommodation give rise to nausea and vomiting. That, often, this is the sole factor at work is evident from the fact that the simple expedient of wearing a patch over one eye when on board has been sufficient in so many cases to prevent sea sickness. No efforts are made to reconcile the workings of the two eyes, strain is prevented, and sickness remains absent. It is not suggested that sea sickness is always due to this cause, but it often is, and the above mentioned expedient is consequently always worth a trial. In the majority of cases, no doubt, other factors are also at work, and in most of them we must suppose that there is an undue irritability of the nervous system, which causes a too ready response to slight stimuli.

¹ See next chapter

In patients of this type it is generally easy to prevent sea-sickness if we can commence treatment a week or so before the voyage begins. The excitability of the general nervous system is reduced to normal by giving bromide of ammonium in 10 grain doses three times a day for at least three days. The *primæ viæ* are suitably cleared, and, with a view of exercising a special effect upon the stomach, some liq bismuth ammon cit (2 drachms) with tr nucis vom (3 minims) is added to each dose of the bromide mixture.

The medicine should not be taken on board—not only because it is then too late but also because there is another drug which has proved in my experience unfailing, even when given without any preliminary preparation by bromides—namely chloretone. A good way of giving chloretone is to prescribe it in 5 to 10 grain cachets—one cachet to be taken during the train journey down to the boat, another as soon as the patient is settled on board, and a third if necessary, at any time during the voyage. If the patient is directed to preserve the dorsal posture when on board the third cachet is very seldom necessary. I have now prescribed chloretone in a great number of cases, and where the way has been prepared for it by the bromide mixture, I have not known it fail and even in the absence of any such preparation, I have learned to have the utmost confidence in it. It may be given in 10-grain doses if sickness threatens. It will often stop an attack which is actually in progress. A pleasant

prescription for the prevention of sea sickness is a bunch of grapes and a glass of champagne. The scientific sanction for this is that sea sickness is due to an acidosis which the wine and grape sugar combine to counteract.

It is not infrequently necessary to treat symptomatic vomiting, either pending the removal of the cause or when the cause is unfortunately not removable. A great many expedients have been suggested for this purpose, some of which are often useful, but which seem as often to be without effect. The application of a blister or a mustard plaster to the epigastrium is often very successful, but no less often useless. Occasionally successful, also, is the application of an ice-bag to the same region, or a poultice, or gentle massage. These are all well worth trying, for they are simple enough, and if they do not succeed, they cannot do any harm. And here, as in the case of diarrhoea, one of the best of therapeutic measures is complete abstention from food. Such abstention would often be willingly practised by the patient, but misplaced solicitude prevents him from following his wholesome instincts.

Of drugs, the simplest is undoubtedly lime water, and Burney Yeo urges strongly that it should be given a trial more frequently than is now the case. A table spoonful, he says, should be administered hourly for several hours before recourse is had to other means. He recommends, further, the addition of one drop of creosote well shaken up with each dose, in case the

lime-water alone is unsuccessful. Champagne is perhaps one of the most popular of all remedies for this condition, and it has the merit of being one of the most efficacious. It should be given, preferably iced, in small doses, say 1 to 2 drachms, repeated at intervals of ten minutes or a quarter of an hour, until vomiting ceases. I have known this to succeed when all other measures have failed.

Vin ipecac, liq arsenicalis and hydrocyanic acid have all enjoyed some reputation in the treatment of vomiting, and for this purpose they are all employed in minute doses—*i. e.*, not more than 2 minims. Ringer speaks highly of vin ipecac, but not everyone is able to share his enthusiasm. Fowler's solution is admittedly useful in the morning vomiting of drunkards, but I have found it beneficial in symptomatic vomiting arising from other causes. Hydrocyanic acid is usually reliable, but it is not wise to restrict its use to the small doses above suggested. It may be necessary to prescribe it in 3 or even 5 minim doses to be effective, but these must obviously not be frequently repeated. A combination of all three drugs in 1 drop doses repeated at intervals of ten minutes or a quarter of an hour, is an expedient to which I have occasionally resorted with success.

Bismuth is a useful drug in vomiting, and, combined with oxalate of cerium, it is, when the stomach will retain anything, probably the most reliable of all. It is best given in cachets.

R.	Bismuth subnit.	---	..	..	gr. xx
	Cerul oxalat	..	..	...	gr. v.

M. Ft pulv. in cachet i.

But the cachet must be well moistened before any attempt is made to swallow it. Finally, morphia by hypodermic injection, though it often causes vomiting, will not infrequently stop it. When given for this purpose the dose should be relatively large—that is, about $\frac{1}{2}$ grain. Small single doses are much more liable to cause gastric disturbance than large ones.

In association with vomiting it seems appropriate to consider briefly the allied condition of GIDDINESS¹. Although this condition is common in cerebellar disease, especially cerebellar tumours, in disseminate sclerosis, and is not altogether uncommon in tabes, it should not be regarded as necessarily indicating the presence of some grave cerebro-spinal mischief. It is frequently due to ocular troubles, paralysis of an ocular muscle will give rise to it, and errors of refraction are among the commonest causes. Abnormalities in or about the ears very readily occasion the symptom, hardened cerumen being among the most frequent.

Ménière's syndrome, or aural vertigo, which is due to an affection of the semicircular canals, may cause paroxysmal attacks of giddiness, accompanied by vomiting, and is thus liable to be mistaken for mi-

¹ See 'The Border Land of Epilepsy,' by Sir William Gowers

graine (*q v*, p. 177) Ménière's syndrome is, however, almost always associated with some degree of deafness, which is seldom the case in migraine, moreover, in aural vertigo the giddiness is very pronounced, so much so that the patient not infrequently falls For the treatment of aural vertigo, bromide of potassium and belladonna, persevered with over long periods often do a great deal of good During the attacks both quinine and the salicylates are highly spoken of Quinine should be given in large doses (10 to 15 grains or more), salicylates, in the form of aspirin (10 to 15 grains), is probably equally efficacious and less liable to produce unpleasant by effects Some times hydrobromic acid acts better than any of the bromide salts This drug is much the most effective remedy we have in those persistent noises in the head which occasion so much annoyance and alarm to those who suffer from them

Giddiness is said to be sometimes due to causes arising in the digestive apparatus The real cause of giddiness in most cases, apart from those which have just been noticed, is some disturbance in the vaso motor mechanism We know that toxins originating in the digestive tract are very powerful disturbers of this mechanism, and it is exceedingly likely that digestive disturbances may cause giddiness in this way The disturbance as a rule takes the form of vaso constriction, but there seems no reason why the opposite condition of vaso dilatation should not also bring about the same result The circulatory ap

paratus in the brain is of so delicate a nature that any alteration of the calibre of the conducting vessels is liable to cause symptoms. The giddiness of elderly people usually means atheroma, that of the gouty, either high blood pressure or its next stage, arterio sclerosis, even the giddiness of epileptics is probably circulatory in origin, and that which is so common at the climacteric is certainly so. It should be remembered that flatulent distension of the gullet and stomach, especially the gullet, may cause giddiness by mechanical pressure on the heart.

Attacks of giddiness, therefore, should never be regarded lightly. They may be due to transitory causes, but they may, on the other hand, indicate some very serious condition. They should always lead to a careful examination of the nervous system, including the special senses, and, failing the discovery of a cause therein the question of the state of the heart and bloodvessels should engage the most anxious attention. It is not too much to say that the vast majority of cases of 'simple' giddiness are due to vascular changes, and that among these high blood pressure occupies the first place. For a consideration of this question and its treatment, the reader is referred to the chapter on Goutiness.

ADDITIONAL FORMULÆ

For Colic

R. Chlorof.	℥ij
Morph. acetat.	gr iij
Olei anisi	℥xvi.
Ol. menth pip	℥xvi.
Syr acacia	℥ss
Aq camph.	ad ℥iv
M.	℥ij. ℥ss for a dose

For Colic with Constipation

R. Ol. cajuput	℥iv
Sacch. alb	gr x
Rub together and add	
Tr jalap	℥i
Decoc aloes co.	ad ℥iss.
M.	℥i. haust.

For Colic of Infants

R. Tr cascariilæ	℥x.
Tr krameræ	℥x
Ol. anthemidis	℥i ij.
Syr simplicis	℥ss.
Aquam	ad ℥ij.
M. Sig	One teaspoonful every two hours.

Constipation in very Young Infants.

Mannite	gr cl.
Hot water	℥iss
M.	A dessertspoonful every hour until it acts

For Constipation

- 1 lb French plums in enough water to cover them.
 Stew for three hours simmering gently and then
 remove stones
 1 oz of ground ginger (good weight)
 1½ oz. powdered senna
 1 lb Demerara sugar
 Mix the whole together well in a pudding basin.
 Dose A teaspoonful at bedtime.

Pills for Gouty Constipation.

R	Iridin	gr xxiv
	Aloes pulv	gr xviii
	Ext hyoscyam	gr vi.

M. et divide in pil xii Sig One at bedtime followed
by a saline in the morning

For Diarrhœa in Infants after an Aperient

(a) R	Saponis duri Hispanioli	gr xvi.
	Cretæ prep	gr xx.
	Syr flor aurant	℥ii
	Aq menth sativ	℥iii
	Aquam fœniculi	ad ℥i

M. Sig A teaspoonful every eight hours for a child
between six and twelve months of age Older children
may take the same quantity every six hours

(b) R	Spts ammon aromat	℥xx
	Tr rhei	℥xxiv
	Tr opu	℥iv
	Spts chlorof	℥xxiv
	Aquam carui	ad ℥i

M Sig One teaspoonful every eight hours for a
child of six months of age.

Diarrhœa of Adults after an Aperient

(a) R	Tr kino	℥i
	Tr catechu	℥i
	Mist cretæ	℥iul.
	Aquam cinnamomi	ad ℥vi.

M. Sig ℥ss every three hours

(b) R	Acid sulph aromat	℥ss
	Ol cajuput	℥xl
	Ext hæmatoxyl	℥ii.
	Spts chlorof	℥i
	Syr zingiber	ad ℥iul.

M Sig ℥i in water every two or three hours.

CHAPTER IV.

RHEUMATISM, NEURALGIA, HEADACHE

RHEUMATISM is a term which, if it ever had a precise meaning, has now, unfortunately, lost it. As applied to acute rheumatism or rheumatic fever, it bears, no doubt, a definite significance, but it is now generally admitted that the disease which is described under these names has no real relationship with the numerous other morbid conditions to which the terms 'rheumatism' or 'rheumatic' are commonly applied. These terms are made to comprise most of the arthropathies, both acute and chronic. The arthropathies have been very conveniently divided into the essential and the accidental; the former being those in which the joint affection is the predominant feature in the disease, such as gout, acute and subacute, rheumatic fever, morbus coxæ senilis and rheumatoid arthritis, the latter being those in which the joints are involved secondarily to some other affection, such as pulmonary osteo arthritis, and the arthritis of gonorrhœal, scarlatinal, septic, syphilitic or neuropathic origin. These conditions are quite distinct from each other, and, as they all belong to the

sphere which is properly covered by the textbooks they need not concern us here

Now, so called chronic rheumatism has nothing what ever to do with true rheumatism and it would be well if some authoritative name could be applied to the condition which is variously described as rheumatics chronic rheumatism, muscular rheumatism, tendinous rheumatism, rheumatic myositis myalgia, and neuralgic rheumatism, for the morbid state which is thus buried beneath misleading and confusing names has a very distinct and very definite existence with its own pathology, symptomology and therapeutics, so that the retention of the term 'rheumatism' in connection with it is not to be defended even on the ground of convenience. In the meantime being to some extent bound by custom, I propose to use the expressive illiterate but highly convenient term 'rheumatics' invented by and beloved of the laity, to designate the condition

Rheumatics, then, may be described in the terms of Stockman, who has done so much to introduce order into the chaos which previously existed on this subject, as a condition in which the essential pathological changes are confined to white fibrous tissue, in which, therefore, the manifestations appear chiefly in aponeurosis, fibrous septa, the sheaths of muscles and nerves, periosteum, and the fibrous structures surrounding the joints. 'The lesion' he

says, consists in inflammation and hyperplasia of the connective tissue in patches, and the condition may be widely spread over the body or be confined to a certain area of it '.

When once the conception presented by this description is realized, the isolated and disconnected facts which have hitherto been associated with the condition at once fall, as it were into their appropriate places. *White fibrous tissue is found practically in all parts of the body, so that the rheumatics may appear anywhere, but inasmuch as there is a special distribution of this tissue in connection with joints, voluntary muscles, and nerves, it is not surprising to find that it is in these structures that the disease most often shows itself* It is thus evident that so called chronic articular rheumatism, muscular rheumatism, or myalgia especially in the form of lumbago, neuralgia, especially in the form of sciatica and brachialgia are all one and the same disease the only real difference between them being the anatomical situation of the fibrous tissue which is attacked by the inflammation and hyperplasia described by Stockman

Where the fibrous tissues all over the body are more or less unpartially attacked, the result is what is known as febricula, or feverish cold—a condition to which reference has already been made (Chapter I.) as a fruitful source of error in diagnosis Those who do not remember its existence almost invariably label it influenza, which often gives rise to unnecessary alarm

'Rheumatics,' then includes arthritis, lumbago, torticollis, and other aponeurotic and muscular inflammations, wherever situated, sciatica, intercostal and other neuralgias, and inasmuch as the pericardium, pleura, and dura mater are all richly supplied with white fibrous tissue, it will be proper to comprise in this category certain forms, at any rate, of cardialgia, pleurodynia, and rheumatic headache.

This inflammation of white fibrous tissue or 'fibrositis' as Sir William Gowers named it, is said to be due to a variety of causes. It certainly seems to be determined by many conditions and influenced by many others, but the cause is probably always the same. This cause is connected with the gastro-intestinal tract, and is almost certainly produced by the absorption of toxins therefrom. The toxins are the result of defective metabolism, from the too free ingestion of meat foods and alcoholic drinks, or their inadequate elimination.

Such a state of matters does not constitute gout, but it constitutes a condition very nearly allied thereto, and we are generally quite safe in treating a person who is subject to fibrositis as if he were goutily inclined. And this we may do in spite of the fact that the manifestations are by no means confined to the old or middle-aged. The old are, perhaps, more prone to be attacked by chronic arthritic fibrositis, but myalgia is more common in young adults, and even children are occasionally affected.

Of determining causes, damp, cold, and atmospheric changes appear to be the most potent. It is difficult to trace the connection between the states of the weather and the incidence of fibrositis, but that there is a very intimate connection everyone who has ever suffered from the disorder will readily agree. Many a patient complains that he is a regular barometer, that he can be sure that a change is imminent, but none can foretell with any approach to accuracy what the nature of the change will be. Some will have an attack when the wind is going to the east, others when it is going to the west, and most will predict an increase in atmospheric humidity.

The question is an interesting one, about which, however, very little is at present known. These atmospheric influences, whatever they may be, are particularly liable to affect joints or muscles which have been the seat of injury or overwork. Thus, the rheumatics will always select by preference the fibrous tissue surrounding a joint which has been sprained, and the 'golf shoulder' or 'tennis elbow' will be found afflicting the particular joint which has borne the brunt of the season's work. The prevalence of lumbago is almost certainly susceptible of a similar explanation, in that the muscles and aponeuroses therein concerned are those which maintain the erect posture.

The application of sudden cold is a very powerful

determining cause. Sitting in a draught will unquestionably bring on an attack in a predisposed person. A common history is that of a sudden onset during the cold morning tub, and some bathing fatalities are probably due to this cause. But whatever may be the exciting or determining cause of a particular attack, the point to remember is that the essential condition precedent is the existence of a toxin in the blood, and that that toxin in the large majority of cases, if not in all, is of gastro-intestinal origin. This fact at once points to the two most important indications in the treatment of a fibrositis wherever it may appear, and these are the cleansing of the gastro intestinal tract by a mercurial purge, and the careful regulation of the diet by the diminution of meat foods and alcoholic drinks. An additional measure of the utmost utility at the outset is an ordinary hot bath of 100° F. or over, or, better still the hot wet pack. A radiant heat bath is probably better than either where this can be procured without exposing the patient to the risk of subsequent cold. Warmth and equability of temperature are very important during the first forty eight hours of an attack.

So much, then, for the etiology, pathology, and general indications for treatment of fibrositis. Let us now proceed to consider the condition as it appears in the various parts of the body, and first, as to its manifestations in the neighbourhood of the joints. One of the characteristics of the condition is that a

single joint only is affected. This is the rule, to which there are of course, exceptions, but it is seldom indeed that more than three are affected. In recurring attacks it is nearly always the same joint which is involved, and, if any joint in the body has ever been the seat of injury, it is tolerably certain that the fibrositis will select that one. When once the process has established itself in a joint there is not, as in true rheumatism, any tendency to leave that joint and go to another. The complaint in connection with the affected joint is one of pain and impaired mobility, the latter usually depending very much upon the former. The pain is not often to be described as merely chronic, it is much more often subacute, and occasionally it is even acute. It is aggravated by sudden and violent movement, and varies greatly with changes of temperature and atmospheric humidity. The arthritis is never accompanied by fever, and it has no tendency to produce endocarditis or other complications.

The medicinal treatment of this manifestation of 'rheumatism' is not very successful. The salicylates especially in the form of aspirin (10 to 15 grains three times daily), are occasionally beneficial, though I have had better and more uniform results from iodide of potassium and guaiacum (10 grains of each three times daily). Antipyrin together with salicylate of sodium is a useful combination, especially where pain is a prominent symptom, but this combination is less useful here than in the neuralgic type of the

affection. Locally, the application of warmth is invaluable. A hot douche which, in the case of such joints as the wrist, knee, or ankle, can be improvised at home by holding the part under a hot tap, is an excellent expedient, to which recourse may be had two or three times a day with great advantage. Hot fomentations, especially when frequently repeated, are also very useful, and compresses of potassium iodide and citrate of lithia often seem to hasten resolution. Local exposure to radiant heat is in my experience one of the very best means of bringing about resorption and disappearance of the fibrous thickening which is the essence of this condition.

Although it is, on account of the pain, necessary to keep the joint for the most part at rest, this must not lead to forgetfulness of the fact that movement is absolutely essential to anything approaching a satisfactory issue. This movement must at first be slight and passive, but as the pain subsides it should become free and active. An enormous amount of avoidable crippling is brought about by allowing patients to 'coddle' joints thus affected. Movement is the essence of the cure, and if it is neglected the joint very readily becomes stiff and disabled. Of course the movement must be applied with sympathy and discrimination. It is better that the doctor himself should do it during the acutely painful period, if there be one and as soon as circumstances permit he may delegate the duty to a competent masseur, or,

where such is not available, it is usually not difficult to instruct a member of the household in this means of restoring function

These and similar measures are in very chronic or recurrent cases much better carried out at a spa than in the patient's own home. It is, indeed, in the treatment of such cases that the baths, douches, and massage for which such places are famous, justify most completely the confidence which is now so generally accorded them. Of Continental summer resorts Aix les Bains justly enjoys the highest reputation, but Vichy, Luchon, Baden Baden, and many others, are fully equipped for the treatment. In winter Salsomaggiore in Italy is a place to which such patients may very suitably be recommended. In this country at Buxton, Woodhall Spa, Llandrindod and Harrogate in summer time, and at Bath and Sidmouth in winter, the necessary treatment is admirably carried out, and by no means the least advantage of the home stations is that the practising physicians have owing to the English climate, opportunities for gaining an amount of experience in the various phases of the complaint which is denied to their continental brethren.

MYALGIA.—If, of the pains of arthritic fibrositis, it may be said that they are subacute more often than chronic, of those of myalgia, or muscular fibrositis, it may be affirmed that they are acute more frequently than subacute. They vary of course as do the others. They are generally confined to one set of muscles, as

those of one shoulder joint or one side of the neck (torticollis), they are usually relieved by firm pressure and are invariably worse at night. This aggravation at night, or rather in the early morning, is very characteristic. The patient wakes in great pain, so great that he doubts the possibility of being able to dress himself, nevertheless, when he begins to move, even in his bed he finds that matters are not so bad as they at first seemed and by the time he gets downstairs his troubles may have resolved themselves into stiffness and fear of sudden movement. The onset of myalgia is generally sudden, occasionally so sudden as to give the impression of a blow, and when it starts in this way it is apt to be very acute.

Lumbago is often quoted as the typical form of myalgia. This in my opinion it certainly is not for the reason that in most cases if not in all the fibrous tissue in connection with structures other than muscle are always affected. Luff is certainly right when he says '*In the majority of cases of lumbago the affection is not in the quadratus lumborum nor even in the deeper muscles of the back, but is in the fibrous tissues directly over the sacro iliac joint and in the joint itself*'. It is from the spreading of the inflammation along the sheath of the sciatic nerve that we find lumbago and sciatica so frequently associated.

A much better instance of myalgia though even here tissues other than the muscular are often included, is supplied by deltoid and brachial myalgia.

This is liable to be very acute, and is generally of long duration, it is of all others the one which is most conspicuously influenced by meteorological variations, and subject to nocturnal exacerbations. Stiff neck, or torticollis, is another good instance. This is especially common among young adults and is fortunately very amenable to treatment.

Myalgia will often pass off in a few days without anything more heroic in the way of treatment than a hot application and some rubbing. More often however, it becomes obstinate to household remedies and demands careful management. Internally nothing can compare with *iodide of potassium* and externally nothing is so efficacious as massage. The massage to be effectual, should be applied twice a day by some one who is conscious of the needs of the situation. *Mere superficial effleurage is useless.* The muscles must be handled gently but firmly, so as to promote the lymph flow within their substance. This will cause a certain amount of pain at first, especially if the operator be unskilful, but, in spite of this fact, the treatment must not only be continued, but it must be reinforced by the application of warmth in the form of poultices and fomentations and by the addition of stimulating liniments. A good plan is to rub the part with liniment of iodine and then apply a poultice. Camphor liniment and chloroform liniment are also useful for this purpose. Luff prefers anodyne applications, and recommends a mixture of equal parts of

chloral hydrate, camphor, and menthol, which he says, when well rubbed together, form a liquid Methyl salicylate and mesotan are in his experience also very valuable. But, whatever the medicament employed, a large part of its power for good resides in the method of its application, and unless this includes vigorous massage — as vigorous, that is, as pain will permit—the virtues of the drug will remain largely inoperative. For chronic cases the massage should be accompanied by douching, as at Aix les-Bains, by light baths, or by electricity.

Lumbago, as we have just seen, is a mixed fibrosis partly muscular, partly aponeurotic, and largely arthritic, and inasmuch as it is so frequently accompanied by sciatica, it may be considered as in a sense neuralgic. Acute lumbago is startling and disabling. It is startling from the extreme suddenness of its onset, and disabling from the fact that the trunk cannot be moved except with great pain, so that the patient is obliged to remain in bed. It is most common in men, at or about middle age, who usually present themselves with a diagnosis ready made, for 'lumbago' with the laity means any pain in the small of the back. Such a diagnosis should, of course, never be accepted, and we ought to be careful always to examine the back, the knee and plantar reflexes, and the urine before confirming it. I have known very grave mistakes to be made through initial negligence of these very simple precautions.

A line of treatment which was much in vogue

twenty years ago for a sudden attack of lumbago consisted in a hot bath (100° to 103° F.), a dose of Dover's powder (12 grains), and a drachm of sweet spirits of nitre, supplemented by a linseed and mustard poultice to the loins. This I still believe to be an admirable course of procedure in a large number of cases; but I have learnt to distrust the action of the opium, especially in the very patients—namely, those about middle life—who are most prone to suffer from the complaint, so that I came to use James's powder, (*pulv antimonialis*) 5 grains in its stead, and to give therewith a mercurial cathartic. This method I have found to be not only more efficacious, but entirely free from the disadvantages attaching to the exhibition of opium in such cases.

For the rest, it is only necessary to reiterate what I have said above as to the value—I would almost say the paramount importance—of massage and stimulating applications in the further treatment of the condition, and the necessity for regulating the diet of the patient so as to eliminate as far as possible meat foods and alcoholic drinks. As long as pain is present the patient must keep his bed, not only on account of the pain itself, but because of the fact that equability of temperature is an important feature of the cure. Cold influences are not only in the highest degree unpleasant, but they tend above everything else to prolong convalescence and retard recovery.

The **NEURALGIC FIBROSITIS** which so often accom

panies lumbago may occur independently thereof, and, when so occurring, it may be regarded as the type of an affection which is liable to attack almost any nerve in the body, some common examples of which are supplied by cervico-brachial neuralgia (often called neuritis), intercostal neuralgia, coccydynia, and plantar neuralgia. In sciatica, as in lumbago, we should be especially cautious in accepting a ready made diagnosis, for pain along the sciatic nerve may be due to causes other than fibrositis, and if the pain is definitely worse at night, or, if both sciatic nerves are involved, it is tolerably certain that some much more serious factor is in operation.¹ A 'sciatica' may be caused by a loaded rectum, by uterine and ovarian displacements, by tumours and disease of the spinal cord itself, and such possible factors should always be carefully and exhaustively investigated before the pain is pronounced to be due to a neuralgia, and treated as such.

For this purpose it is important to determine whether the pain is due to pressure, or to some factor in the nerve itself or in its sheath. If by pressure the pain will not be sensibly aggravated when the nerve is put on the stretch, it may, indeed, be to some extent relieved by the process, whereas, when the mischief is in the nerve or its sheath, the stretching will obviously increase the pain. In order to set this point at rest, the patient is placed upon his

¹ F. J. Smith, 'Mistakes' (*Clinical Journal*, December 27, 1905)

back and the pelvis firmly fixed against the bed by an attendant. The limb on the affected side which must be kept fully extended at the knee is then gently and gradually raised by the examiner until it is at right angles to the couch. This will put the nerve on the stretch, and if no aggravation of pain results then the cause is to be sought outside the sheath of the nerve, it is not due to a fibrositis and the condition is not, properly speaking a sciatica.

So far as the treatment of sciatica is concerned there is not much to add to what has already been said in connection with other forms of fibrositis. Massage, which is of the utmost importance in all these forms, is in sciatica the one local remedy upon which any great reliance can be placed. Dr Lee¹ says 'It is in sciatica, of all the neuralgias, that massage has won its greatest reputation. Truly astonishing results have been obtained, even when the affection has been of many years standing and after every other conceivable means of relief has proved unsuccessful.'

This coincides completely with my own experience, and since I have used massage perseveringly assisted in suitable cases by douching and the application of stimulating liniments, I have had no occasion to resort to acupuncture, surgical stretching of the nerve and other heroic remedies which are often recommended, and which the tedious nature of these cases

¹ Hare's 'Practical Therapeutics.

so often suggests to the despairing physician. If massage were employed early in all cases, few would become chronic; and if it is persevered with in cases which have become chronic even to the causing of decided wasting of the muscles, it will in time always bring about a cure. Some of the antineuralgic drugs, which will be noticed presently, may also be used concurrently. Some of them, especially phenozone and butyl chloral, have often seemed to me to do good in the way of rendering the massage more tolerable. Without massage these drugs may be palliative, but they are never curative as they are in neuralgia due to causes other than fibrositis.

It would be easy to multiply instances of the manifestations of the 'rheumatics' as they occur in various parts and structures, but no good purpose would be served by so doing. The essential points to remember are that these manifestations are due to inflammation of white fibrous tissue, that they may be acute, subacute or chronic, that they are seldom accompanied by constitutional disturbance, and that they are very amenable to treatment, more especially by iodide of potassium internally, and externally, by massage, passive movements and stimulating applications.

NEURALGIA.—Pain which follows the distribution of certain nerves is a very common disorder. It may, as we have just seen, be due to fibrositis, but, so far at any rate as the smaller nerves are concerned, it is much more often due to other causes. Chief among

these are unsatisfactory blood states. That neuralgia is the cry of a nerve for healthy blood is an oft quoted saying, and certain it is that undue toxicity of the blood, from whatever cause arising, is an important, as it is certainly the most common, agent in the causation of pain. For toxins in the blood act not only by direct irritation of a nerve but they also act, as in gout, by causing vaso constriction, thus depriving the nerve of its due quantity of nutritive material. Burney Yeo suggests that a factor of an opposite kind is not infrequently in operation—namely, that the blood state may give rise to vaso-dilatation, and that it is a kind of blushing in the neighbourhood of the nerve which determines the pain. However that may be, all that it is necessary to realize is that impure blood is the most important cause of neuralgia, and that it may produce this effect not only directly, but also by interference with the normal vasomotor mechanism. Another cause, scarcely less in importance is the existence of an irritant causing fatigue of the involved nerve.

The presence of a neuralgia then, should suggest—(1) a fibrositis, (2) an unsatisfactory blood state and (3) the existence of an irritant. With the first I have already dealt, there remain, therefore, the other two to consider. Of unsatisfactory blood states the commonest is surely anæmia. Whether this be due to convalescence from acute disease, to mere chlo-

rosis, to deficient coagulability of the blood, or other cause, it is very frequently attended by neuralgia, more especially about the head and lower part of the trunk on one side

The treatment of such cases resolves itself into the treatment of the anæmia by suitable hygienic, dietetic, and medicinal means. So far as hygiene is concerned, an out of door life in a bracing climate is strongly to be advised. The diet should be regulated on the general principles elsewhere laid down—namely, an abundance of vitamine containing foods in which butter and cream should receive a prominent place. Fats seem to be concerned in some very special manner with the nourishment of the nervous system, and in the form of butter and cream they may be freely given to such patients as we are now considering. There is no objection to allowing wine or beer in moderation to these patients. The best medicine is undoubtedly iron, but the stronger salts, the sulphate and perchloride, are much less efficacious than the citrates and tartrates. The two latter are readily assimilated, whereas the former are very apt to upset the stomach. A useful formula is as follows

R	Ferr ammon citrat	gr x
	Liq arsenicalis	ʒiij
	Inf quassia	ad ʒss
	M Sig Ter die post cib	

As the patient's strength improves it may be desirable to substitute the following

R	Ferri quin citrat	gr xx.
	Liq arsenicalis	ʒv
	Tr nucis vom.	ʒiiv
	Aquam aurant flor	ad ʒss

M. Sig Ter die post cib

The presence of quinine, even in such doses may help to subdue the neuralgia. When giving iron in any form and for any purpose it is of the utmost importance to keep the bowels open. This is best done by means of aloes at first, because this drug enhances the effect of the iron and later by cascara. A daily morning dose of a natural mineral water is also very useful.

But where the neuralgia is an obtrusive feature of the condition it is generally necessary to prescribe something which has a direct influence upon the pain when this occurs. In anæmic cases and in all those in which defective nutrition is pronounced I have had better results from quinine and gelsemium than from any other combination.

R.	Quin. mur	gr v
	Acid. hydrobrom dil.	ʒxxx.
	Tr gelsemini	ʒxl.
	Aquam chloroformi	ʒss.

M. Sig Every twenty minutes till pain ceases Not more than four doses to be taken

This mixture like most others where the relief of pain is concerned acts better in small doses repeated at short intervals than in single large doses.

The state of the blood in goutiness is such as to

be highly provocative of neuralgic pains. So that, if there is reason to suspect an underlying gouty diathesis, iodide of potassium may be expected to do good. Occasionally, however, it does not, and then it is well to have recourse to the following combination

R	Sodium salicylat	}	aa gr v
	Phenazon		
	Syr zingiber		ʒi
	Aq chloroformi		ad ʒi
M	Sig Every quarter of an hour until pain ceases Not more than four doses to be taken.		

This is a most admirable combination in the migrainoid neuralgic attacks to which the gouty are peculiarly prone. I have appealed to it in a large number of cases and so far never in vain. For a reason which it does not seem possible to explain, the combination of these two drugs is infinitely more effectual than either given alone. When directed to be taken as above the mixture acts better than in single large doses.

A fruitful and easily overlooked cause of neuralgia, especially in women is the toxic blood state induced by chronic constipation. This must be treated by the curing of the vicious habit on the lines laid down in Chapter III, but here again we may have to treat the neuralgia concurrently with the treatment of the constipation, in which case the phenozone and salicylate mixture just described will usually be found the most useful though quinine and gelsemium are to be preferred where, in consequence of the long dura

tion of the constipation, the patient is anæmic and emaciated

Neuralgia occurs frequently in neurotic women, but I have generally found that there is some discoverable and removable cause for the neurosis of which the neuralgia is an occasional manifestation, and this cause is more often than not a peripheral irritation, of which the origin is to be found in the teeth, the tonsils, the ears, or the eyes. Such irritation, when acute, is a recognised cause of neuralgia in those who are not neurotic and there is no difficulty in supposing that, when chronic, it may give rise to that nervous instability to which the term neurotic is applied. A common site for such irritation is the ovarian region. Examination of this region in neurotic women will often reveal pain on pressure over one or both ovaries, in which case infinitely the best drug to use is *bella donna*. It is usefully combined with *phenozone*, and its administration should always be accompanied by the application of blisters, small in size, but frequently repeated, in the region where the pain has been elicited.

A practical point of considerable importance in connection with the management of these cases is characteristically expressed by Goodhart, in that altogether admirable little work '*Common Neuroses*' (which should be carefully read by every young practitioner) in the following passage

'I have said it is a bad day for a man when he first knows he has a heart, it is a ten times worse day for a woman when the pelvic pains to which so many are

subject are focussed for her by medical opinion upon uterus or ovary. If there is anything which curdles my blood, it is to hear a woman talk of her ovaries as she might of some intimate acquaintance.

In the manufacture of incorrigible neurotics the word ovarian blurted inadvertently from incautious lips, is a common and potent ingredient.

Irritation within the buccal cavity is a frequent cause of facial neuralgia and it should be remembered that it is not only teeth which are obviously carious which may produce this result. The radiography of the teeth has now been brought to such perfection that every suspected mouth should be X-rayed. Unerupted teeth are far more frequent than used formerly to be supposed. For the relief of neuralgia of facial or cranial distribution arising from such a cause butyl chloral is probably the best of all internal remedies. It should be given in pill form, 5 grains every half hour until pain ceases, not more than six pills to be thus taken. It is usefully combined with gelsemine which is another drug with a selective influence over cranial neuralgias. For this purpose the pil butyl chloral c gelsemina (Martindale) is very useful. Local applications are not usually accounted of much value in facial neuralgia but I have found that the lin aconiti carefully painted with a camel hair brush over the area occupied by the pain is not only helpful in assisting the action of drugs taken internally but that it is in some cases sufficient of itself to cut short

an attack. For the vague, ill defined neuralgic and 'rheumatically' pains of which people not infrequently complain, I have found chloride of ammonium, 20 grains, combined with tr. cimicifug., 20 minims, more effectual than any of the above mentioned remedies

One of the most valuable drugs for the relief of neuralgic and neuritic pains, wherever situated, is acetanilid (antifebrin). In spite of its undoubted powers in this direction, even where such pains as those of tabes are concerned, it has of late fallen into disuse. This has been due in a large measure to the fact that it is credited with the production of untoward effects. This is in reality only partly true. When properly employed, it is no more dangerous than any of the numerous drugs which daily flow, freely and callously, so to speak, from the point of the prescriber's pen. First, then, as to dose. The old official dose of 10 grains is too high, at any rate, to start with. It is better to begin with 2 grains, which will in many cases be found sufficient. If not, the dose may be gradually increased to 10 or even 15 grains. It should not be increased above fifteen if, the physiological effect having been produced, the pain fails to yield. This physiological effect is slight cyanosis. The lips and nails become a dusky red. This effect has in a great measure been responsible for the disuse into which the drug has fallen. There is nothing alarming about it, and it is necessary to remember that, as in the case of so many other drugs, the curative virtues of acetanilid very often decline to

show themselves until this physiological effect has been evoked. These facts seem worth insisting upon, because, apart from morphia acetanilid is in my judgment by far the most powerful anti neuralgic at our disposal. It will relieve the pains of locomotor ataxy and of other organic diseases of the nervous system when nothing else will and he who allows himself to be frightened by the occasional cyanosis which it causes, deprives himself of a most valuable therapeutic agent. That its use requires a certain amount of caution is not a sufficient reason for abandoning it. Acetanilid being practically insoluble in water is best given in cachet combined either with salicylate of sodium (10 grains) or camphor monobromat (6 grains)

It is scarcely necessary to mention morphia as an anti neuralgic, except to say that it is not employed as often for this purpose as it might be. It is, of course, most undesirable that its use should be prolonged, but there is no objection to exhibiting it for the relief of pain, pending the action of other remedies. For the intense neuralgia which sometimes accompanies true influenza and other acute toxæmias it has no equal. Its use in recurrent neuralgias is undesirable, not only on account of the patient, but also for the sake of the practitioner, who unless he is careful will find himself urgently summoned at all hours of the day and night to administer the necessary dose. This, which is unsatisfactory enough, is on the whole preferable to

entrusting, as is too often done, a needle and a bottle of tabloids to the all too willing patient

Another unduly neglected means of relieving neuralgic pains, in suitable cases, is leeching. One would not, of course, recommend it in weakly, anæmic subjects, but in full-blooded individuals the relief it gives often approaches the miraculous. This is especially true where the pain seems to be in, or to radiate from, the ear. A leech placed behind the ear and allowed to take its full quantity of blood will often give complete relief where other means have failed.

HEADACHE—There remains to be considered a highly important peripheral irritant, perhaps the most important of all in the causation of neuralgia, which I have left to this stage that I might discuss it in association with headache, to which it also gives rise with great frequency—namely, eye strain. Where eye strain is concerned neuralgia and headache may be regarded as synonymous terms for it is impossible to be certain where the one ends and the other begins. And I may say at once that these two conditions by no means exhaust the troubles to which eye-strain may give rise. It is, as we shall see presently, a frequent, though too often unsuspected, cause of neurasthenia, melancholia, intemperance, and drug habits, to say nothing of such minor matters as irritability of temper, dyspepsia, constipation, and ‘sluggish liver’

The first point to remember in connection with eye strain—and it is one upon which it seems very

necessary to insist—is that the condition is produced, not by gross defects but by slight ones, not by high degrees of errors of refraction, but by minor ones.¹ So much is this the case that patients are often indignant that any aspersions should be cast upon their eyesight, which, they will protest, has always been exceptionally good. And the truth is that such patients *are* able to see as well as anyone for the reason that, the defect being slight, it has always been well within their power by contracting the ciliary muscle, to overcome the defect. In the case of those with gross defects no amount of ciliary contraction enables them to see clearly, and so the effort, even if it is ever made is very early abandoned. In the case of those with minor defects the difficulty arises from the fact that it is no more possible to keep the ciliary muscle contracted for hours on end than it is to keep any other muscle in the body so contracted without giving rise to fatigue. Especially does this apply when astigmatism is present, as the ciliary muscle is then contracted not only continuously but also irregularly. The difference between the ciliary and other muscles is that in the latter the symptoms of fatigue are easily recognised as due to fatigue, but in the case of the eye, so long as the vision remains unimpaired the seat of origin is almost certain to go unsuspected. The patient sees well but in the majority of cases, he does so at

¹ See 'Refraction of the Eye' by Ernest Clarke 1930 (Baillière Tindall and Cox)

a cost which, physiologically speaking, he cannot afford to pay. He lives well up to the limit of his nervous income, and any slight unexpected extra demand will very readily project him into bankruptcy.

It is when he has reached this state that he appeals to his doctor to be relieved of a headache or an attack of neuralgia. For, be it remembered, the pains which are caused by eye strain are by no means always present, frequently—indeed, generally—they require some extraneous cause to provoke them. As long as the patient is permitted to pursue the even tenor of his way, he is able to live within his income and keep his enemy at bay, but no sooner is that even tenor disturbed, as by worry or an over generous dinner, than he finds himself at the end of his resources, with his enemy at his throat. The factor which in a large number of cases supplies the disturbing element is the advance of time. As long as a man is young and vigorous his nervous income is equal to almost any strain but as years wear on this income gradually diminishes, and as he approaches the presbyopic age when another disturbing element awaits him, he is always more or less on the margin of symptoms. When the presbyopic age is actually reached, and the lens has lost a great deal of its original elasticity, the ciliary muscle has still more work thrown upon it, and consequently such symptoms are of frequent occurrence.

The nature of these symptoms varies within wide limits. Neuralgia and headache, with which we

are for the moment especially concerned, take the first place. Neither the distribution of the neuralgia (except that it is generally cranial) nor the type of the headache, affords any indication that it is the eyes which are at fault, so that it is all the more important to keep constantly reminding ourselves of the now well established fact that where either of these symptoms cannot be traced to any obvious cause, eye strain is, in all probability, the main factor in their production.

Another common effect of refractive errors is giddiness. This is liable to occasion very considerable alarm to patients, who are generally afraid that it indicates intracranial mischief. To medical men it generally suggests gastric disorders, aural troubles, or circulatory disturbances. These are all common causes, but probably the most common, especially in people about middle life, is that which is least frequently remembered—namely, ocular defects, which are slight, and therefore unsuspected by the patient.

Nausea and vomiting, as we have already seen (*vide* Chapter III) are often due to eye strain. In these cases, as in most others, it is to be remembered that something more than eye-strain itself is generally required to precipitate an attack. The something is often so slight a matter that it altogether escapes notice unless the presence of eye-strain, acting as a chronic underlying irritant, is realized. In all these cases it is the summation of slight stimuli which produces the effect, and of these slight stimuli that

which is constant and ever present is the one whose removal is important. With that gone the others cease to be operative.

But the manifestations of eye strain are not all so definite as the foregoing. The visual defect indeed expresses itself even more frequently in forms which until we are familiar with its almost unlimited capacity for producing indefinite symptoms are very difficult of recognition. 'The Autocrat of the Breakfast Table' says that it is better to lose a pint of blood from your veins than to have a nerve tapped. Now that is precisely what eye strain does, it taps a nerve. The energy runs to waste and the whole cerebro spinal system becomes exhausted. When once the outline of this picture is clearly discerned, it is by no means difficult to fill in the detail. For cerebro spinal exhaustion, though it has no symptoms by which it may with certainty be recognised by the doctor, has a very real existence for the patient. In its slighter degrees it may mean no more than the deprivation from a particular viscus, say the stomach, of its fair share of nervous energy, leading to dyspepsia, or it may spell an evident want of control in the higher cerebral centres, causing irritability of temper, undue emotionalism or a craving for stimulants. In more pronounced degrees it will cause the grouping of symptoms to which the term *neurasthenia* is applied. It may cause hysterical ebullitions and may even be responsible for epileptic attacks. In degrees still more pronounced it may

lead to melancholia and even to suicide. There is in short, no functional disturbance of any portion of the central nervous system which may not own eye-strain as its essential cause, so that it is impossible to insist too strongly upon the importance to every practitioner of being able to detect slight errors of refraction. Into the details connected with the necessary examination it is impossible to enter here but the following hints may serve as a useful guide.

1. *Objective Examination*—(a) Defects of vision may be suspected if the patient screws up his eyes or places his head on one side in order to read or to see some object at a distance. If there is a hyperæmia of the margin of the lids, generally the upper lid, an error of some kind is usually the cause, and if a patient under forty years of age presents an arcus senilis especially if one eye only be thus affected, it is almost certain that the premature degeneration has been brought about by eye strain of some kind.

(b) When the eye is examined by the *indirect* method with a concave mirror and focussing glass, Hyperopia is present if the disc is larger than usual, and appears to diminish on withdrawing the glass from the eye, Myopia is present if the disc is smaller than usual, and seems to enlarge on withdrawing the glass, and Astigmatism is present if the disc is oblong and appears to alter in shape on withdrawing the focussing glass.

(c) By *direct* ophthalmoscopy Hyperopia is present

if convex glasses improve the view of the fundus, myopia, if concave glasses do so, and astigmatism shows itself by parts of the fundus being out of focus while other portions at right angles are in focus.

2 *Subjective Examination*.—Hyperopia is probably present if the patient's vision is not made worse by convex glasses, myopia is suspected if the patient's reading distance is nearer than normal, and astigmatism if the patient can read some of the letters in the lowest line of the distant type, but makes mistakes even when reading a line half way down, or if, when looking at radiating lines put at a distance of 4 to 6 metres, some of the lines look blacker than others

It must, however, be distinctly borne in mind that if the patient is not under the influence of a cycloplegic, these tests, if *negative*, prove nothing as he may be, and probably is, *involuntarily correcting his error*

Eye strain is, however by no means the only kind of chronic peripheral irritation which may give rise to headache. Dental troubles which fall short of gross caries, frequently produce it, overcrowding of the mouth, owing to eruption of the wisdom teeth, being a common and often unsuspected cause. Impairment of respiratory power, brought about by obstructions in the nose and throat are other easily overlooked causes, chief among them being deviations of the septum and other factors acting upon one nostril only. Aural troubles of every sort should always be carefully examined for.

A form of headache which presents special features and concerning whose ætiology there has been a great deal of speculation, is *migraine* or hemicrania. The latter name is applied to it because the pain generally begins on one side of the head, and is sometimes confined to that side throughout the attack. The characteristic of migraine is its periodicity. The attacks recur at intervals, though not necessarily at regular intervals, and their origin is exceedingly difficult to trace. Migrainous people like epileptics, are always more or less liable to an attack, and, like epileptics, they have premonitions, they know the sort of influence which may affect them, and immediately after an attack they know that they will enjoy immunity for a variable time. The attacks usually begin, significantly enough with some ocular phenomenon, such as flickering lights of various forms and zigzag lines of colours in different parts of the field of vision the so called fortification patterns, then follows an intense headache, accompanied generally by nausea vomiting and extreme prostration which may last for varying periods. At the end of forty eight hours the patient is generally well again.

To understand the phenomena presented by migraine we have, as in epilepsy, to assume some underlying instability of the nerve-centres, which are provoked into a stormy condition by stimuli which leave ordinary individuals unaffected. The attacks are common in the studious, in the sedentary, in the highly cultured,

and are rare in the bucolic. In the light of what has been said above on the question of eye-strain, and the capacity of this condition to produce a disturbance of nervous equilibrium, coupled with the fact that migrainous attacks are almost invariably accompanied by ocular phenomena, special care should be taken to eliminate this element in every case. A large number of people have slight defects of vision, and such slight defects, while harmless to the peasant of robust organization, may readily provide a constant irritant to the studious of delicate organization, and thus contribute a powerful underlying cause for the attacks. A migrainous person should be examined very minutely by physician, oculist, aurist, and gynecologist, and any defect in any department, however slight, which could possibly act as a cause of irritation, should be removed. The physician should pay particular attention to the cardio vascular system, the oculist to the state of the refraction, and the aurist to any remediable errors in the ear, throat, or nose. If nothing abnormal can be discovered, then we are reduced to attempting to lessen the general nervous reactive sensibility by hygiene, diet, and the exhibition of bromides. A country, open air life, a diet free from stimulating foods and alcoholic drinks, and the bromide of ammonium in 10 grain doses, three times daily, for a week every now and again, will very often keep the enemy at bay. During the attacks rest and a darkened room are essential. When taken in time—that is, before the attack has

had time to develop—the phenozone and salicylate mixture above prescribed (see p 169) will often—indeed, generally—act admirably I have found it superior to phenacetin (10 grains) or aspirin (10 grains), in both of which some people however express great confidence

Upon headache as a symptom of *intracranial mischief* it is unnecessary to dwell When the pain, as in migraine is accompanied by vomiting the fundus oculi should always be examined for anything suggestive of optic neuritis and careful search should be made for other physical signs of organic disease in the nervous system Intracranial tumours and meningitis are causes which should always be borne in mind.

There is a certain class of headache which is occasionally described as *congestive*. The term is misleading, because headaches due to a diversity of causes might legitimately be so called If, however, we qualify the term by the adjective ‘mechanical,’ it is possible to recognise a separate and distinct group Headaches due to mechanical congestion are produced by factors which are easily overlooked Anything which interferes with the proper circulation of the blood may occasion them and in ordinary life tight corsets in women and tight collars in men will be found to be common causes This type of headache, which is described as a general fulness, *aggravated on stooping*, may be the first indication of the existence of a lesion at the mitral valve, so that

a complaint of such a nature, more especially when it is accompanied by a history of epistaxis, should always lead to a careful examination of the cardiac area

Nasal obstruction, whether from enlarged tonsils, adenoids, or deviations of the septum, is exceedingly likely to cause headaches of the congestive type. The two former are readily recognised, and promptly—perhaps too promptly—removed, but the latter is often allowed to continue unremedied. Nasal deformities constitute an exceedingly common cause of headache in adults, and as they are easily remedied, there need be no hesitation in advising their radical cure, even in people who have passed middle life. The correction of these deformities must be left to the expert, but I would suggest that the most speedy, complete, and lasting benefit is to be obtained from submucous resection, by which the cartilaginous and bony obstruction is entirely removed, leaving a fleshy septum, an intact mucosa, and a clear air way.

Headache is often caused by *change of climate*. The removal of a person from sedative to bracing conditions, and, even more frequently, *vice versa*, commonly brings about changes in the vascular pressure, which, in the absence of adequate reactive power in the individual (in the convalescent, for example), frequently cause headache and depression of spirits. If these symptoms do not pass off in a few days, it may be necessary to resort to treatment. Where the headache has been induced by relaxing climatic conditions, a

mixture containing 2 grains of quinine and 5 minims of liq strychnin will generally do all that is necessary. Where, on the other hand, the climate is 'too strong,' as the expression is, 10 grains each of the iodide and bromide of potassium three times a day will be found useful. In each case the mixture should be preceded by a dose of calomel or blue pill, followed by a saline.

Pain in the head of a superficial character, such as seems confined to the scalp, is a frequent accompaniment of '*colds*' in the head. In such cases the pain is usually due to a fibrositis of the tissues overlying the skull, and is to be treated on lines already suggested.¹ Headache is a common symptom of *neurasthenia*.

Most headaches are due to what are comprehensively described as *blood states*.

There are numerous familiar instances of this. All the specific fevers are liable to be ushered in with a headache more or less severe, and the poisons of alcohol and lead almost invariably cause the symptom. Among the toxæmias due to defective excretion, kidney disease and diabetes are classical instances of causative factors while chronic constipation is probably both the commonest and the most generally overlooked. In all these cases the discovery of the cause immediately points the way to the proper treatment, and some people have endeavoured to aid in the discovery of the cause by mapping out certain cranial areas in which pain occurs, and attaching to

¹ See Chapter I

each area a particular group of causes. Thus, pain which is mainly vertical is said to be due to the following anæmia, hysteria, neurasthenia, epilepsy, and disease of the uterus or appendages. A headache which is chiefly frontal is deemed to be gastro intestinal, renal, ocular, syphilitic, or myalgic. An occipital headache is considered suggestive of intracranial mischief and spinal irritation. While believing a great many of these to be fanciful, I think there is no doubt that headaches due to defective elimination, such as those caused by uræmia, diabetes, constipation, and impure atmospheres, are generally frontal, and that those which appear in functional nervous troubles seem to have a preference for the vertex, but even in such cases it is not wise to attach much importance to so variable an element as the site.

In everyday life it is certainly the toxins of gastro intestinal origin which are most frequently responsible for the occurrence of headache. These toxins generally act by interfering with the intracranial vaso-motor mechanism causing now undue contraction, and anon undue dilatation, of the cerebral vessels. The indications in either case are the same—namely, to cut off the supply of the toxins, and to promote the excretion of those already absorbed. The means of doing this are fully discussed elsewhere in this book, so that here it is only necessary to emphasize the importance of dietetic simplicity, such as absence of meat foods and alcoholic drinks, and of excretory vigour by means of purgatives.

and diuretics. Stress may, perhaps, be laid on the importance of the latter, which seem very generally to be neglected. The salts of potassium, especially the iodide and citrate, are most useful, but the best of all renal stimulants is undoubtedly theobromine. Some physicians, who are possessed by the uric acid bogey, object to this drug on account of its close relationship with xanthine and the other purin bodies. An over-curious regard for these would, however, lead also to the condemnation of caffeine, whose efficacy as a heart tonic in suitable cases is second only to that of digitalis.

Whatever its connection with other bodies with the radical C_5N_4 , and however dangerous such a connection may seem theoretically to be, there can be no doubt that theobromine is the most active renal evacuant we possess, and it may be prescribed with every confidence in all cases where we are desirous of ridding the system of a toxin, such as a nitrogenous toxin, which is normally disposed of through the kidneys. It is best given in cachets of 15 to 20 grains three times daily. It occasionally operates as a drastic purgative, in which case the dose must be lessened. Some people prefer to give it in the form of 'diuretin,' in which it is combined with a salicylate.

In addition to general evacuants, it is generally desirable to prescribe measures directed to the relief of symptoms. Where there is reason to suppose that the headache is due to vaso-constriction, liq. trinitrini

is very useful. Its effect, however, is transitory, and it should not, for obvious reasons be frequently repeated. It is best given in conjunction with hydrobromic acid—thus

℞	Liq trinitrini	℥iv
	Acid hydrobrom dil	℥xxx
	Aquam	ad ℥ss.
	M	Sig Ter die

Another useful drug for the symptomatic treatment of headache is *cannabis indica*. If given as the tincture in combination with other drugs, it must be suspended in mucilage, it is, therefore, better to give it separately in the form of extract, of which from $\frac{1}{2}$ to 1 grain may be made into a pill with lycopodium and given three times daily.

G W Ross in a valuable paper contributed to the *Lancet*, describes a chronic headache which shows itself as a dull, heavy ache, worse in the morning and tending to wear off as the day advances and accompanied by mental and physical lassitude. This he says, is associated with deficient coagulability of the blood, and yields readily to the exhibition of chloride of calcium (see Chapter VIII.)

In very persistent headaches which resist all treatment, it is well to try the effect of a blister on the nape of the neck, to be kept open with savin ointment for a week or ten days on end. I have known this expedient succeed where other measures had failed.

ADDITIONAL FORMULÆ.

For Neuralgia, especially when Intercostal, or due to
Eye strain.

R. Phenacetin gr. x.
Caffeine citrate gr. v.

M. Ft. pulv. in cachet l. Sig.: Every two or
three hours till pain ceases.

For Neuralgia, Migraine, and the Pains of Organic
Nervous Disease and Menstrual Troubles.

R. Pyramidon, gr. v. to viii., dissolved in water, three times
daily.

Hypnotics.

(a) R. Paraldehyde ʒi.
Mucil. acac. ʒii.
Syr. simpl. ʒii.
Aquam cinnamom. ad ʒ ii.

M. Sig.: To be taken at bedtime.

(b) R. Lupulini gr. iij.
Camphor gr. iij.
Ext. hyoscyam. gr. iij.

M. Ft. pil. ii. To be taken at bedtime.

(c) Sulphonal (gr. xx.), Trional (gr. x. to xxx), and Veronal
(gr. v. to x.) are all valuable hypnotics. They should, however,
be accompanied by appropriate remedies when the sleeplessness
is due to pain.

(d) Bromidia (Battie) is a useful hypnotic. It contains
chloral, potassium bromide, and cannabis indica.

Local Applications.

(e) R. Lin. aconite }
Lin. chloroform. } ʒi ʒii

Sig.: To be gently rubbed into the painful part
in myalgia or other fibrositis.

(b) Dr G H Kenyon strongly advocates the local application of tartarated antimony in lumbago. The ung antimon tartarat is thoroughly rubbed into the part twice daily, if necessary, until the characteristic pustules make their appearance.

(c) Antiphlogistine is a convenient and, in some cases at least, a very efficacious form of stimulating local application. Over poultices it has the great merit of cleanliness and asepticity, to fomentations it is to be preferred in that it need only be applied once in twenty four hours. It contains *inter alia* glycerine, boracic and salicylic acids, eucalyptus and iodine.

CHAPTER V

SALIENT SYMPTOMS

IN the previous editions of this work the chapter which here followed was entitled Goutiness. It was an omnibus chapter, which was made to embrace many matters, which had but a feeble association with the gouty diathesis. Moreover, the term gouty, like the disease gout, seems to have gone out of fashion. The morbid state still exists, and will continue to exist so long as there are lazy, gluttonous, and bibulous people in the world, and it will probably change its label from time to time. What used formerly to be goutiness has been broken up, so to speak, into what are believed to be some of its component parts, among which are intestinal toxæmia, focal infections, seborrhœa, chronic tonsillitis, and various other conditions, including probably the Œdipus complex. I have therefore deemed it simpler to deal with the matter from a different angle by treating some of the most outstanding symptoms of the gouty diathesis in such a way as to suggest their relationship to other conditions. The more one studies medicine the less becomes one's appetite for water tight compartments.

Our forefathers seem always to have been aware, dimly at first but with an ever increasing clarity, that undue acidity lay at the root of a large number of morbid conditions. Uric acid held undisputed sway for many puzzled years, to be finally discarded to make room for the more inclusive 'acidosis'. This term has come to mean any condition in which the alkalinity of the blood and tissues falls below par. According to this theory the blood remains alkaline, but not in a degree which is compatible with perfect health and until the balance is redressed the rather indefinite symptoms of relative acidity will not cease from troubling. The reduced alkalinity of the blood is brought about by the presence of acids produced for the most part within the body. These acids are the result of faulty metabolism due to unsuitable intake and insufficient output. The exact nature of the symptoms which their presence will produce depends upon a variety of factors concerning the nature and action of which we are so far without any real knowledge. We must therefore content ourselves with a consideration of some of the symptoms without any attempt at correlation.

I ALBUMINURIA

Let us then begin with albuminuria and seek to gauge its significance in any particular case.

We have it on the authority of Virchow, Martin Hofmeister, and others that albuminuria is the rule

with new born babies The amount of albumin is at first abundant, but diminishes gradually, until by the fourteenth day it has completely disappeared

Adolescents, who are apparently in good health, are subject to what is described as cyclical or postural albuminuria, a phenomenon which is now admitted on all hands to be devoid of pathological significance Amongst adults of mature age, military men and doctors, Leube and Furbringer have described a considerable number of cases of this postural or cyclical albuminuria, unaccompanied and unfollowed by any morbid tendency Such cases nevertheless often turn out to be mildly subthyroidic

Adolescents, who are undoubtedly in good health, very easily develop albuminuria as the result of fatigue This was conclusively shown by W Collier, of Oxford, who examined young men in training for races, men who may therefore be assumed to have been in a high state of physical and physiological efficiency In a very large percentage (from 57 to 100) of these young men albumin appeared in the urine a short time after hard exercise, to disappear again after a period of repose

According to Playfair, albuminuria occurs in 20 per cent of pregnant women after the third month, and in a much larger percentage of primiparae Some of these cases, it is true, progress to definite renal disease, but the vast majority suffer no inconvenience from the occurrence of the symptom

Finally, there is Senator's statement to the effect

that every urine will be found to contain albumin if sufficiently concentrated.

The foregoing are, all of them, admittedly physiological conditions, the significance of which it is necessary to explain if we would realize the meaning of albuminuria as it occurs in conditions which are not physiological. Now, it is universally conceded that albuminuria may be caused by a congested state of the renal vessels, a fact with which we are all familiar in heart disease and similar conditions. Perhaps the most striking instance is afforded by the albuminuria due to injuries of the spinal cord, in which the vaso motor nerves are paralyzed. But lesser degrees of congestion will produce the same results. Chills to the surface, for instance, as after cold bathing, especially in the sea, are known to provoke the appearance of albumin in the urine, presumably by increasing the amount of blood in the splanchnic area, and thus inducing a transient renal stasis. Let us see what bearing this has upon the physiological albuminurias just mentioned.

The newly-born infant is but partially adapted to the new conditions to which he is suddenly subjected. Most of the powers which he subsequently develops are in a very embryonic state. More especially is this true of the co-ordinating or controlling power. He can, for instance, use muscles, but he has not learned to co ordinate them. His sphincters act, but he is unable to control them. These powers are developed only by degrees and by training. We

must, I think, assume the same to be the case in a much higher degree with the complicated mechanism of vaso-motor co ordination and control. The blushing and pallor which occur involuntarily on any slight emotion, even at a very much later period, are sufficient to show that this mechanism is an exceedingly delicate one, which demands a considerable amount of training and adjustment before it can be considered to be in good working order. When a baby comes into the world he leaves a warm and equable climate for one which is cold and liable to considerable variations. However carefully he may be protected from such influences, they are bound to reach him, to the extent, at any rate, of causing very decided differences in the balance of blood distribution to which he has hitherto been accustomed. His skin is now, for the first time, called upon to contract, and this contraction causes the blood to seek refuge in the organs of the splanchnic area. The vessels in this area have not yet learned how to behave in the presence of such an influx, and the organs suffer a certain degree of congestion. The renal vessels are among those affected, and an albuminuria results. After a few days the splanchnic vessels learn their lesson the congestion is gradually reduced, and the albuminuria disappears.

The case of the adolescent is not very different from that of the new born baby. As the boy is being transformed into the man, and the girl into the woman, new activities are developed, which place an

enormous strain upon the delicate vaso motor mechanism which tends, in consequence, to fail. Failure of this mechanism is almost invariably in one direction—in that, namely, of undue vaso dilation. The calls upon the nervous system are so considerable and so pressing that the tone of the peripheral arteries is not adequately maintained, with the result which always ensues in such circumstances, namely, that during the erect posture the blood collects in the capacious vessels of the splanchnic area. Then ensues a congestion in the renal vessels with consequent albuminuria. So long as the patient is recumbent the blood does not tarry unduly in the splanchnic area, there is no renal congestion and no albuminuria. No sooner, however is the erect posture assumed than the albumin reappears. The fact that in some of these cases the albumin diminishes or disappears towards the end of the day only signifies that by that time the vaso motor mechanism has been provoked into a sense of its responsibilities, and has realized the necessity for contracting the splanchnic vessels in response to the change of posture. This postural or cyclical albuminuria is quite common in people who have been obliged to keep their beds for a considerable time for some such cause as a fractured leg. In them the vaso-motor response atrophies from disuse, so to speak, and has to be re educated as the erect posture is resumed.

As an instance of what is liable to happen to an adolescent who exhibits the phenomenon of postural

albuminuria, let me briefly relate the case of a young man aged twenty three years whom I first saw some years ago. Eighteen months previously, after he had been working hard at the University for his degree, he tried to insure his life, but was refused. This naturally alarmed him, and he consulted his doctor. The latter found that his urine contained no less than 40 per cent albumin, told him that he had Bright's disease and ordered him to Cannes for the winter. I may say parenthetically that if the patient had really had nephritis the Riviera, with its abrupt variations of temperature, was about as bad a place as could possibly have been selected for him. However, to the Riviera he went, and returned home no better. His doctor then sent him to bed, and put him on a diet consisting only of milk. In about a week the albumin had completely disappeared, where upon he was allowed up again. In two days the albumin had reappeared, but in reduced quantities, and he was sent back to bed. Again the albumin disappeared, to reappear as soon as he was allowed to get up. My notes do not say exactly how long this game of battledore and shuttlecock continued, but eventually the patient wearied of it. Having, in consultation with his friends, decided that appendicitis could be the only explanation of the mystery, he came up to town to consult a surgeon, through whose instrumentality he eventually came to me, still, curious to relate, wearing his appendix intact. He was also wearing three or four layers of thick woollen under

garments, his skin was relaxed and sodden his blood pressure was 85 mm Hg, his urine scanty and loaded with albumin. The most careful examination failed, however to reveal any evidence of organic disease, so, when I had satisfied myself as to the absence of albumin after a few days in bed, and the absence of granular casts at all times, I instructed him how to clothe himself. I sent him to Margate with some strychnine and calcium chloride, and told him to pull himself together and live hard. Being anxious to get well, he did as he was told, and is now working hard taking plenty of exercise and feeling perfectly well. He has learned how to test for albumin and he tells me that, except after a dance or a hard set at tennis his urine is now quite free from it.

The albuminuria of young athletes is not quite so easy of explanation as the foregoing. It is nevertheless safe to assert that it is purely vaso motor in origin. The train of events is probably somewhat as follows. We know that during muscular exercise the general blood pressure is raised. The heart increases the number of its systoles the vessels in the splanchnic area are contracted while those which supply the muscles actually in use are dilated. After the exercise is over there is a reaction, which varies in degree directly with the magnitude and duration of the effort. After severe and prolonged exertion, therefore, the splanchnics dilate, and the muscular vessels tend to contract. If this contraction is hastened, as it generally is in young men at Uni

versities and public schools, by a cold shower or plunge, the blood is driven inwards with such rapidity that a renal congestion is produced, and albuminuria results. It is probable, however, that, apart altogether from the cold shower, the reaction from the conditions which necessarily obtain during active exercise are sufficient to induce a renal stasis, more especially in young men in whom we have seen the vaso motor response to be but partially educated. It seems, however, that this may not be the whole explanation, for not only is the composition of the blood materially altered by vigorous exertion, in that the waste products are largely augmented, but the sudden and considerable elevation of blood pressure entailed by such exertion is of itself sufficient to provoke a transient albuminuria.

The presence of albumin in the urine of pregnant women after the third month is obviously mechanical. The enlarging uterus, even if it does not exercise direct pressure upon the renal veins materially alters the distribution of pressure in the splanchnic area, and if the normal compensatory mechanism is not in good working order, a stasis with consequent albuminuria is not difficult to imagine. It is a significant fact that such an albuminuria is more common in primiparæ.

We have, then, in albuminuria a symptom which may occur, and constantly does occur, in conditions which are purely physiological. We know, further, that it occurs in states which, though pathological in

various degrees are nevertheless not such as even to suggest that the kidneys are at fault. I have already mentioned cardiac disease and spinal injuries, but these by no means exhaust the conditions in which albumin is frequently, if not constantly, found in the urine. In pronounced myxœdema it is a classical and well known finding, and it is also well known that the albumin rapidly disappears under thyroid treatment. It is by no means uncommon in minor degrees of thyroid insufficiency. In certain conditions, which are wrongly labelled obesity which are nearly related to myxœdema, though quite distinct there from, as shown by the fact that thyroid extract has no beneficial influence upon them, albumin is often present in the urine in very large quantities, and disappears rapidly under suitable treatment. Albuminuria is very commonly present in chlorosis in Graves' disease, in tonsillitis even other than diphtheritic, in some forms of dyspepsia, and in almost all cases of hepatic congestion, in migraine in epilepsy, during the gouty paroxysm and in most toxic pyrexias. Among pulmonary conditions it is found as an early sign of tubercle. It is common in asthma, and by no means uncommon in the bronchitis of emphysematous patients. Moreover, a very large number of drugs will give rise to it, cubebs, copaiba, turpentine mercury, morphia, quinine, arsenic, and phosphorus, are among the most important, but they by no means complete the list. Passing abnormalities anywhere in the urinary passages may provoke the

symptom. An excess of oxalates in the urine will produce it; so will the irritation of small calculi or sand. A slight cystitis is by no means an uncommon cause, and an exceedingly common one is the presence of spermatozoa in the urethra. Altered blood states, as in the essential anæmias, almost always provoke albuminuria. Women, at or about the menopause, very frequently have an appreciable quantity of albumin in the urine, especially if this be examined at the time when an expected period has failed to appear. The combination of this with a certain rise of blood-pressure, which is very common at the climacteric, has frequently given rise to serious and alarming mistakes in diagnosis. Langdon Brown says that if albumin disappears from the urine as the result of treatment by chloride of calcium, or if the albumin is absent from the early morning specimen, the albuminuria is probably of the harmless type.

Very often, of course, the meaning of an albuminuria is sufficiently obvious. It is seldom, indeed, that we find ourselves in doubt about acute nephritis, or chronic tubal nephritis, or amyloid disease. In these cases and in gross tuberculous renal lesions, the coexisting symptoms are almost invariably such as to point unmistakably to the true source of the albumin. The cases which give rise to perplexity are those in which the albumin constitutes the only, or almost the only, symptom. In such cases one has no right to express anxiety, much less to pronounce a sentence of incurable disease, unless in addition to

albumin the urine also contains definite evidence of structural disturbance in the kidneys. This is a matter which should as a rule be referred to an analyst. It is unwise for the practitioner to accept the sole responsibility for so grave a decision.

II. GLYCOSURIA.

The appearance of sugar in the urine is an event which demands instant and careful investigation. The symptom may be transient and harmless, as when it is due to strong emotion or dietetic indiscretion, but it may also indicate serious and even incurable disease. Langdon Brown, whose writings on what may be called *clinical physiology* are always lucid and instructive, warns us that 'the centre of interest so far as sugar metabolism is concerned, has shifted from the urine to the blood,' and we have now to recognise that a positive reaction with Fehling or Benedict demands an examination of the blood sugar, an inquiry which can only be conducted by an expert. The quantitative determination of the sugar in the blood at intervals after a dose of dextrose is the only way to obtain information as to the real condition of affairs, because the level which the blood sugar has to reach before it appears in the urine shows considerable variation in different individuals, and in the same individual at different times. As Graham puts it, some have a high, others a low, leaking point. Patients with a high leaking point have been known to have in the blood as

much as 0.8 per cent of sugar (0.1 per cent is the normal), and almost none in the urine, while in those with a low renal threshold and relatively little sugar in the blood, the urine showed an amount of sugar far above the level corresponding to the metabolic coefficient of the individual (Paterson MacLaren). This shows the great importance of an appeal to the expert when the urine reacts to a test for sugar. Alimentary glycosuria is the name given to the abnormal condition which is a frequent forerunner of true diabetes. When sugar enters the blood, its ultimate fate is to be converted into glycogen by the liver. It has been found that only those sugars which are directly fermentable by yeast are capable of suffering this conversion—that is, the mono saccharides. The di saccharides are not easily so fermented and thus it comes about that when absorbed by the intestine they are treated as foreign substances and passed straight into the urine for excretion.

Paterson MacLaren quotes MacLean as saying, 'that it is often a matter of chance whether or not there is sugar in the urine at the time of examination for it is not uncommon for patients with mild glycosuria to pass a urine containing as much as 1 per cent of sugar about two hours after a meal, while the next specimen may be entirely free,' and contends that examiners relying unduly upon the coming urinary examination fail to give proper attention to the clinical symptoms, which, if properly observed, would suffice to arouse suspicion. Among these are a dry skin, a tendency to

boils, and, on cross examination, an admission of undue fondness for sweets, increasing weight, decreasing virility and muscular power. People will suffer considerable degrees of thirst and polyuria without saying anything about them unless questioned. Maclaren sums up as follows 'The truth, therefore, is that the examination of the urine is not the true or a reliable means of determining diabetes, the only true index being the presence of sugar in the blood to an abnormal extent'

It must be remembered that injections of adrenalin will excite glycosuria, that taking of thyroid extract will do the same, and that pituitrin, by exercising a direct inhibitory action on insulin, will prevent it from reducing blood sugar. Claude Bernard's famous puncture of the floor of the fourth ventricle is now explained as producing glycosuria by way of the pituitary.

Langdon Brown says a patient with granular kidney may have glycosuria, usually of the amenable type, and goes on to state *per contra* that prolonged glycosuria inevitably leads to albuminuria in time.

The treatment of glycosuria as opposed to diabetes is purely a question of rational dietetics, as laid down in Chapter VI. It is, however, necessary to lay special emphasis upon the avoidance of excess of carbohydrates. Caution should be observed in the use of potatoes and milk puddings, and the addition of sugar to various dishes and to tea and coffee should be prohibited. It is quite easy for anyone to eschew

puddings, sweets, and cakes, which contain the highly indigestible, refined, and concentrated cane sugar, and to obtain the sweet elements in the food from fruits and honey, which contain forms of sugar which are natural and easy of digestion

III BLOOD PRESSURE

It is not so very long ago since the importance of blood pressure was very lightly regarded by the professional elders. But it has progressed in favour until it is now become the commonplace of the idle rich. To bleat about 'blood pressure' has for some time been the fashion in Belgravia, under the guise of 'hypertension' it is spreading to the suburbs and the provinces, people are even beginning to compete with each other over the teacups as to the number of millimetres of mercury which they can cause the instrument to register. It therefore behoves the general practitioner so to equip himself as to be at least even with the dinner table expert. Familiarity with the manometer and systolic pressures are now, or ought to be, commonplaces of practice, for it is in terms of the systolic pressure that members of the public usually discuss the question. And yet it is the diastolic pressure which is the really important factor in estimating the circulatory situation. *Halls Dally* says 'Of the two pressures, the minimal or diastolic is of by far the greater importance in that it is a measure of the burden which throughout life the arteries and aortic valves must continuously

bear and from which there is no escape, whilst the maximal or systolic pressure indicates only an intermittent and super added load' The same authority gives the following table of the standard levels of arterial pressures at various ages for males of medium physique In women up to forty years of age pressures are about 10 mm lower than those shown for both systolic and diastolic The popular impression that the systolic pressure of any adult can be correctly estimated by adding 100 to his age is thus seen to be very misleading, especially after forty years of age

TABLE I

THEORETICAL STANDARD ARTERIAL PRESSURES IN MALES OF
MEDIUM PHYSIQUE AT VARIOUS AGES

<i>Age in Years</i>	<i>Systolic Pressure (in Millimetres of Mercury)</i>	<i>Diastolic Pressure</i>
10	100	60
15	110	70
20	122	80
25	124	81
30	126	82
35	127	83
40	128	84
45	129	85
50	130	86
55	132	87
60	135	89
65	140	90
70	143	92
75	147	93
80	150	94
Over 80	All pressures tend to fall.	

Perhaps the most important fact to remember in estimating blood pressures is the state of mind of the examinee. Any degree of mental excitement, even if it should scarcely surpass that of fixed attention, will immediately cause a rise in pressure, which, in the case of a nervous person, may be very considerable. Sir Clifford Allbutt tells the story of a patient who showed an unusually high blood pressure because he mistook the manometer for an electric battery from which he expected to receive a shock. When reassured upon this point the pressure fell to normal. A moderate elevation of blood pressure gives rise to a feeling of general well being, and as the pressure rises after a meal the contented mind said to be the result of a full paunch may be due in part to this cause. The pressure also rises in response to the stimulation of any of the senses—powerful odours, for example, and unusual sights. Where it is necessary that the state of the blood pressure should be recorded, as in life assurance, if the manometer shows a high figure, it is not well to be satisfied with one reading. A heavy meal, a hurried walk, an exciting deal on 'change, an altercation with his wife or his clerk may so upset a man's normal balance as to give a really high reading in a perfectly normal case. These facts should be explained to the patient, and he should be asked to present himself when the temporary storm has subsided. It must also be remembered that certain nervous people are liable to take too much interest in the state of their blood pressures, whether from injudicious dis-

cussions on the subject with doctors, nurses, and vicars, or other cause, the *ipse dixit* of such a person sends the pressure up, and it becomes impossible to attach any importance to the figures recorded. Harken to what Clifford Allbutt has to say on the subject.

' And I repeat that, in spite of our reasonable desire to trace the periods of the arterial tides, we may have to deny ourselves the advantage of frequent observations, and, when made, we shall be wise to keep the records to ourselves. By the finger and the stethoscope a fair notion of the patient's phases can be got, and if we are always silent about figures, whether good or bad, the patient ceases to ask about them and abides content with general appreciations.'

The piece of information afforded by the stethoscope in this matter, to which I have learned to attach considerable importance is the quality of the second cardiac sound as heard at the aortic cartilage. If it should be the loud ringing sound called by the French the *bruit de tabourka*, especially when accompanied by a deliberate pulse rate which is but little affected by change of posture, I confidently expect to find the systolic pressure well above the normal. This must not be mistaken for the ordinary accentuation of the second sound heard in nervous cases which are otherwise quite normal, in these there is generally some heart hurry, and the sound does not ring.

When it is established that the patient is really suffering from what seems to be a sustained high blood pressure, we are immediately confronted with the

problem of its causation This problem must be solved, if we are to give any intelligent reply to the urgent demands for a prognosis to which we shall be subjected. The factors which give rise to the symptom may some of them turn out to be transient and harmless, whilst others hold a serious and ever-present menace of the rupture of an artery at a vital point, for let us not forget that a person with high blood pressure may bleed from anywhere. The age and habits of the patient, and the state of the urine, will afford valuable help in deciding to which of these two extremes a particular case approximates the more closely. In any case, the decision must always be an anxious one, in arriving at which it is as well if possible to share the responsibility with an experienced colleague.

It ought no longer to be necessary to point out that an abnormally high blood pressure is not of itself so evil a thing that when detected we should bend all our energies to its immediate reduction. For, like pyrexia, hypertension is more often than not a conservative or defensive reaction which should not be lightly lessened. It may, of course, happen that a case seems to demand emergency measures if an apoplectic or anginal attack is to be averted. In such an event venesection should certainly be practised or nitrite of amyl exhibited, but save in these and similar emergencies such means should not be employed. The only satisfactory treatment of hyperpiesis is to be found in the simple life. There is no royal road to its reduction.

The same considerations apply when the arterial pressure rises in responso to an augmented intracranial pressure. In order to ensure that the blood shall reach the medulla in spite of the obstacle thus provided, the blood pressure in the arteries is increased commensurately with the increase of pressure within the cranium. The manometer will in consequence show a very high reading, but if we allow ourselves to be beguiled into attempts to reduce the arterial pressure, as by venesection or nitrite of amyl, we shall surely place the patient in imminent danger of his life.

IV OBESITY

Corpulence is a symptom either of endocrine failure or of over feeding. The glandular side of the question is dealt with in Chapter VI. Here we are concerned only with the alimentary side. Accumulation of adipose tissue may be due to excess of intake or to insufficiency of output, frequently both factors are at work. The excess of intake may be quantitative only, as when a man, usually a teetotaler, is unduly fond of fats and sweets. His total intake is quite moderate, but the carbohydrates and fats are too liberally represented. In the great majority of cases however, a fat man is fat because the whole quantity of his ingested food is grossly in excess of his requirements, and his output in the form of muscular exercise is disproportionately small. Also, he probably sleeps too much. He eats in excess of his requirements, because

in his athletic youth, in order to balance a strenuous muscular output, he contracted the habit of large meals. With adolescence passing into manhood, and manhood into maturity, the muscular output gradually declines, *but the habit of large meals remains.* To cross examine a fat man of thirty five, who regards himself as a perfectly healthy specimen, as to the minutiae of his daily intake, is to sigh with astonishment at the tolerance and adaptability of the human digestive organs. The bacon and egg breakfast, the cut off the-joint lunch, the slab of cake tea, the four course dinner, such a man regards as quite suitable to a *sedentary liver, whose only physical output is represented by a few rounds of golf at the week end, and who is proportionately indignant and incredulous when you venture to suggest that he eats more than he needs.*

There are said to be three degrees of fatness the enviable, the comical, and the pitiable, but the truth is that no degree of corpulence is enviable. When one considers the difference which a pound weight on a horse's back will make to its prospect of winning a race, it must be obvious that the unnecessary burden of lard which a fat man carries about with him must act as a serious handicap to his circulatory system. From a careful examination of statistics it has emerged that the apparently healthy man who is rather overweight, in comparison with the published averages, is a relatively bad life. The best lives are those which, when compared with the same averages, are definitely under weight.

It is to be remembered that these published averages are averages merely, and are consequently not to be regarded as normals. They are computed from thousands of people taken, so to speak, at random, and as the vast majority of people (I speak of men only) over fifty years have been grossly overfed for at least half of that period, the said averages, about and after that age, represent consistent overweights. It is frankly absurd to admit as normal that a man should increase his weight by 14 pounds between the ages of twenty five and fifty. And yet that is what the tables tell us we may safely do. It is, indeed, very doubtful whether we ought not to demand of the strictly normal man that he should show a decrease in weight from the years of his muscular and athletic prime to the years of his commencing decrescence, the years when his heart and bloodvessels, lungs, liver, and kidneys may reasonably be expected to reveal some marks of twenty five years' additional wear and tear.

With ever increasing disuse the muscles atrophy, their curves disappear, and with their curves, their weight. So that even if we allow a man of fifty to be the same weight as he was at twenty-five, it is in reality merely a concession to the brother who is in the comical stage. The material which he has accumulated to redress the balance of his departed muscle is merely useless fat, which he carries proudly in his prominent abdomen. Not only has the material changed from useful muscle to useless lard, but its geographical position is altered from magnetic north to slothful south.

Some evidence has recently come from America to emphasize this aspect of the matter. The facts concerning 2,000,000 insured lives—that is to say, reasonably good lives—were examined medically and actuarially. It was found that among those who were 50 pounds overweight at the age of forty-five, the mortality above the average was 50 per cent; and that at the same age those of average weight showed a mortality of 5 per cent above the optimum rate, which optimum was shown to be 20 pounds below the average. 'Average' and 'normal,' though often used interchangeably, are therefore far from being synonymous terms, and the sooner we lower our standards of what is reasonable and proper in the matter of body weight, the better for everyone. It may be remarked in passing that among those who in the above quoted enquiry were found to have unduly high blood pressure 25 per cent. were overweight.

The treatment of alimentary obesity resolves itself mainly into a question of diet. At first sight it might seem desirable to augment the output by vigorous muscular exercise, but experience has shown this to be fallacious. If the general exercise is increased at all it should, at first at any rate, be in very small measure. Certain exercises designed to develop the abdominal muscles gradually are certainly to be encouraged, but the management of such cases should as a rule be referred to those who have made a special study of these matters.¹ In regulating the diet, great stress must be

¹ 'The Culture of the Abdomen,' by F. Hornbrook.

land upon the necessity for a lessened general intake. The generous breakfast, the too, too generous luncheon, and the wholly inexcusable afternoon tea, must all be whittled down, the last named into nothingness. Many patients will protest that they are very small eaters, and according to certain city standards this may be the case, but a little enquiry will elicit that the quantity of food ingested is grossly in excess of physiological requirements. In the matter of quality, the principles to be attacked are the fats and the carbohydrates, and, curious as it may seem, it is more necessary to attack the carbohydrates than the fats, and, of the carbohydrates, it is the sugars rather than the starches which do the harm. It follows therefore that puddings, cakes, chocolates, and sweets must be rigidly forbidden, and if sugar must be taken in tea or coffee, the brown, so called moist, sugar should be used. The sugars present in raw fruits are quite unobjectionable. Stewed fruits should be avoided, because of the added artificial sugar. Fats are, of course, undesirable, and the fats of which most people are too fond, such as bacon, butter, and cream, should be avoided, or at any rate much reduced. The protein element is best obtained from eggs, cheese, fish, poultry, and game. Butcher's meat, being very undesirable on general grounds, should not be allowed. Briefly, then, the breakfast should be on the continental pattern—i.e., brown bread with a small pat of butter, raw fruit, tea or coffee, with a little milk, but no cream or sugar. Luncheon should consist of two poached eggs or an equivalent quantity of omelette or scrambled

eggs, raw salad, cheese and dry biscuit, raw fruit, lemonade or orangeade, unsweetened coffee No afternoon tea ever Dinner soup, fish or chicken, raw or cooked green vegetables, no potatoes, a cheese dish raw or cooked, raw fruit, coffee Alcoholic drinks are best avoided, because they increase appetite and are physiological fat savers A good beverage is made with the juice of two oranges and one lemon to one pint of water, unsweetened It is probably correct to say that in every case of alimentary obesity there is some slight element of hypothyroidism It is, however, never wise to say this to the patient, and if thyroid is prescribed at all, it should be under a name not easily recognizable by the laity—Squires' Elix Collod, for example, which contains 3 grains to every fluid drachm In such cases a very small dose suffices—not more than $\frac{1}{4}$ grain once daily (see later Thyroid Medication)

V DERMATOSES

BOILS

The only skin manifestations which I propose to notice here are boils, acne, warts, and alopecia In the matter of boils the diagnosis is never in doubt (except when they occur in the external auditory meatus, when they may lead to a mistaken diagnosis of mastoid inflammation), so we may pass at once to the question of treatment In regard to this there are three measures to which the ordinary practitioner clings with inexplicable obstinacy One is the knife To incise a boil at any

stage of its career is to lengthen its existence. That simple truth has been an axiom in progressive circles for two generations, and yet incision is the accepted treatment of every boil in every country town.

Another therapeutic measure much beloved of many a practitioner is the poultice. The warmth of a poultice is certainly grateful and comforting, but the damp and messy mass softens the surrounding parts and impairs their defensive capacity, with the result that a crop of little acne-like pustules is liable to emerge, like satellites round the major constellation.

But the ugliest crime perpetrated on boils is the squeezing of them. Squeezing is painful in a high degree, and harmful in a degree even higher. The tissues injured by the squeezing and crushing are reduced to complete impotence, so far as resistance is concerned, so that the staphylococci are able to effect an unchallenged sortie from the boil, just as they do when the boil is incised, and proceed to occupy the surrounding country, disseminating the painful inflammatory mischief with damnable profusion. And the stupidity of it all, the uselessness, the lack of imagination! Save in the very last stage when the pus is eager to escape, there is nothing in a boil which can be expelled by squeezing, there is certainly no pus there. To squeeze an immature boil in the expectation of pus is an act of ignorant and unimaginative blackguardism, and, so far as the attainment of any useful purpose is concerned, you might as well savage the arrival platform at Euston Station to evoke a train which had only just left Crewe.

And yet it is being done every day. I saw it done not long ago by a recently emerged Fellow of the Royal College of Surgeons. I remonstrated gently with him as we walked from the home together. My point of view surprised him very much, he seemed to think that boils, like girls, were there to be squeezed; but after a few moments' consideration he admitted that I was right. Whatever else he may squeeze in future, it will not be boils.

But, it may be objected, if in the treatment of furunculosis we must refrain from incising, poulticing, and squeezing, what may we do? The answer is locally, as little as possible. Of course, the position of the boil may force us to interfere. I have never seen a boil inside the external auditory meatus, but I have heard of one, and can quite imagine that such a lesion in an unyielding bony canal would demand drastic surgical measures. As a rule, however, Nature is merciful, and selects situations such as the back of the neck and the buttock where the pain is more bearable.

'Of particular importance,' says Barber,¹ 'are those accruing in the vestibule of the nose and on or near the upper lip, owing to the fact that infection may spread to the cavernous sinus and result in septic thrombosis, with ultimate pyæmia and death.'

In the matter of local applications the one which has seemed to me to be most useful in relieving pain is *a combination of equal parts of glycerine and ichthyol*

¹ Guy's Hospital Reports, April, 1930

applied as a compress. Glycerine of carbolic is also very useful. Few people seem to remember that carbolic is a local anæsthetic. Of drugs given by the mouth, pills of sulphide of calcium, 1 grain, used formerly to be recommended, but I never knew them to do any good. Nor have I aught to say in favour of the preparations of tin which have had a more recent vogue.

That boils are due to a lessened resistance to the staphylococcus is now universally admitted, and it may safely be said that the most efficacious treatment of these unpleasant visitants when they do arrive is by a vaccine—autogenous or stock—which applies the necessary whip to the slumbering keepers of the house. I have seen a great many cases in which a brewing boil on a predisposed person who recognised the symptoms of an imminent ebullition has been, so to speak, wiped out in twenty four hours by a single dose of a vaccine. I have also known Mr J. E. R. MacDonagh's treatment by the intramuscular injection of colloidal manganese to act in much the same way, though usually with less promptitude. I am told that emetine hydrochloride similarly administered is also efficacious, but I have no experience of it.

Dr. Montgomerie Paton¹ says that diphtheria anti-toxin is a specific enemy of the staphylococcus. When administered in the ordinary way, promptly, and in sufficient doses, it may be trusted implicitly to abort a boil or a carbuncle.

These are measures of urgency designed to free the

¹ *Med. Press Circ.*, September 28, 1929.

organism from the effects of a successful invasion; let us now try to probe beneath the surface with an enquiry as to why it is that some people who live cleanly, nevertheless display a lamentably low resistance to the staphylococcus, whereas others who live riotously can afford to treat him with contumely. It is well recognised that the glycosuric soil affords a suitable dermic hunting ground for staphylococci, so well recognised, indeed, that a physician who is consulted about a boil may be trusted to reach for his Fehling's solution—the wise use Benedict's—before expressing an opinion. But glycosuria has no monopoly in this respect. The soil which we were wont to call gouty or acid, or by some other name intended to denote the diathesis of a sluggish metabolism—*ralentissement de la nutrition*—is a very fertile one so far as boils and blanes are concerned. The intrusion of the gonadal hormone into the endocrine system of young men seems to produce a similar effect. But whether, with our fathers, we are content to call it gouty, or whether, with H. W. Barber,¹ we agree to call it seborrhœic, the fact remains that the soil on which the staphylococci love to hold high revel is one which has been built up on faulty dietetics. There are, no doubt, some contributing factors, amongst which I would give high place, very high place, to tobacco smoking, but an avitaminous régime with excessive meat eating and the super sugar habit are certainly mainly respon-

¹ 'The Relationship of Aural Infection to Diseases of the Skin, Guy's Hospital Reports 1927, lxxvii., 127

sible, especially when associated with a mode of life in which vigorous muscular exercise is insufficiently represented

It would be interesting to know who originated the fantastic heresy that boils are due to 'poverty of blood' In the bad old days of rampant insanitation, boils were probably very frequent among the overcrowded, underfed, under sunned and under washed children of the poor, and general debility, from what cause soever arising, may still be regarded theoretically as an invitation to the staphylococcus As an actual fact, however, the invitation is seldom accepted It is not on the thin, anæmic person that one expects to find a boil, but on the florid many creased bull neck of your gluttonous, bibulous plutocrat, the colour of whose face itself suggests beer and a boil It is not 'poverty' of the blood irrigating the tissues which determines furunculosis, but plethora The plethora in addition to being as a rule general, is also necessarily special in the sense that the blood contains deleterious substances with which the katabolic agencies have been unable to cope, and these hang about and encourage the enemy invasions

Among the provoking causes of boils, there is one which I do not remember to have seen mentioned, which, nevertheless, has always appeared to me to be among the most important—namely, the mental conditions of anger, irritation, or annoyance To describe these psychic states, the French have an expression, *se faire du mauvais sang* (to make to oneself some bad

blood), which I am sure is literally true where boils are concerned. We know that emotions are capable of producing dramatic physical effects, as witness the attack of acute big toe gout produced by a fit of anger, and the effect of fright in suddenly letting loose the symptom complex of Graves' disease or the multiform spasms of chorea. In the face of such well authenticated facts it is not difficult to believe that the humours of the blood may be so altered by contraries as to determine the balance in favour of a milieu congenial to the *Staphylococcus pyogenes aureus*. Nor is the mechanism of these mysteries far to seek. It is known that sudden emotion, especially sudden fear, impels us to muscular movement, we want either to fight or to run away. That is because, in response to the emotion both adrenalin and sugar are poured into the blood stream—the adrenalin to raise the blood pressure, the sugar to commissariat the muscles which do the fighting or the running away. In these civilized days we neither fight nor run away, so that the adrenalin and sugar are not destroyed. I can imagine nothing more calculated to favour noxious germs of all sorts than a fluid full of adrenalin and stuff with sugar, except perhaps the same fluid when bursting with bromides.

WARTS

These curious growths have been variously classified. For our present purpose it is not necessary to notice more than two varieties—namely, the ordinary wart of

childhood, and the senile wart. In the matter of the children's variety it is certainly correct to say that the great majority of them are neurotic. That there is an underlying physical condition which predisposes to this kind of nervous manifestation is probably true, hence the claim made for almost every tonic in the pharmacopœia that it is capable of curing warts, but the growth is certainly nervous. I have sometimes thought that warts were associated with what may be called the adenoid diathesis in the sense that the child whose hands are covered with warts usually has the open mouth and muffled voice which suggests an operation. Of the nervous element in the causation of warts I am in no sort of doubt. When I was practising in the country a child was brought to me whose leisured parents were much concerned about the warts which simply smothered the backs of the two hands. When I had tried the recommended lotions and the usual tonics to no purpose, the mother came one day saying that she had heard of an old woman in a neighbouring village who had the reputation of charming away warts. Did I see any harm in appealing to her? I replied that not only did I see no harm but I would willingly be a party to the conspiracy. I paid a preliminary visit to the old dame and found a singularly simple benevolent looking woman without any sort of mystery in her surroundings or make-up. She told me that she had cured crops of warts in dozens of children by striking their little hands with a fresh dock leaf. She explained that the juice from the dock

leaf 'melted the warts' A day or two afterwards the child was duly taken to her, and the mother and I assisted at the operation, which was performed simply, almost laughingly, in broad daylight. Two days later the warts had completely disappeared. Unfortunately for my wish to obtain further evidence, the old woman died before I could find her another case. I am glad to see that high authorities both in France and Germany are now teaching that warts are curable by suggestion alone.

The other kind of wart which it is necessary to mention is the flat, or senile, or pigmented wart. It occurs in old people, and occupies a much larger area than the common wart. It is to be found sometimes in crops, but more often single in the neighbourhood of the ear or the nape of the neck and on the back. These warts should not be treated by any of the recognised means of extirpation, such as excision or burning with acid (carbonic acid snow), because when they are excited they readily assume a malignant character.

BALDNESS

The subject of ordinary baldness or calvitie has always afforded a large field for speculation, not only as to its cause, but also as to its appropriate treatment. Inasmuch as young men are much concerned when it first begins to disfigure them, it is well that physicians should know more about it than the local hairdresser. The superficial and obvious cause is atrophy of the hair

follicles over a fairly well defined area on the top of the head. Why it is that the follicles in this area should degenerate, while those on the margins of the area retain a vigorous activity is not at present certainly known, but it is known that what may be called baldness of aberrant distribution is due to causes, such as syphilis and myxœdema, which are out of the common. Some people have contended that pressure of hard-brimmed hats, by interfering with the circulation, is directly responsible, others point to the fact that the atrophic area is situated fairly accurately over the part of the bony cranium which is uncovered by muscle, and that it is the absence of the stimulus of muscular movement, as in mastication and in rotation of the head, which accounts for atrophy of the overlying follicles. Then there are those who declare that the habit among men of close cropping the hair dispenses with the necessity of brushing and combing which in women, even in shingled women, is usually sufficiently vigorous to keep the roots well conditioned. Certain it is that baldness among women has become much more common since short hair became the fashion.

There are nevertheless some other factors in operation which are worthy of consideration. One of these is the quality of the hair. Curiously enough, it is the strong, coarse, vigorous hair, and not, as one would expect, the fine silky hair, which shows a disposition to fall before its time. And then there is quite certainly an endocrine side to the problem. I have mentioned elsewhere that the true eunuch, the castrate, never goes bald,

and yet there are eminent endocrinologists especially in the United States, who hold that over sexed men show a much stronger tendency to baldness than those who are normally sexed. H. W. Barber and others find in the 'seborrhœic diathesis' a reason for baldness. The diathesis, it would seem, favours the growth and development of a yeast like organism in the horny layer causing hypertrophy of this layer, which is then shed in the form of visible flakes known as dandruff. The exfoliation represents an attempt to cast off the parasite. In support of this explanation of the majority of cases of common baldness is the fact that it is only the hair lotions that contain mercury or other anti-septic which seem to have any effect in checking baldness and among these mercury is certainly the best. Cantharides, which ought theoretically to be helpful, is quite useless.

I think it fair to include among contributory causes of premature baldness the pressure of tight high collars. These interfere with the circulation of the blood in the scalp, and promote the atrophy of the follicles by interfering with the drainage of the area.

The rational method of preventing baldness, or checking it in its early stages, may be gathered from the foregoing considerations. In giving advice on the subject it is necessary to insist that although the anti-septic lotion is important, it is much less important than the physical treatment by which its use should be accompanied. Indeed, the applications of the lotion should always be made the excuse for massage of

the scalp The hair follicles must be stimulated and kept in being by vigorous brushing, by moving the scalp briskly on the underlying bone, and by the use of one of the electric combs or brushes of which there are many on the market (these have a mechanical advantage, *even though they be innocent of electricity*) Care of the scalp generally must be elevated into a ritual to be observed with regularity and perseverance Intermitient attacks, however brutal, are quite useless It is probable that the present fashion among young men of wearing no hat, which means the exposure of the hair to the atmosphere, will keep the roots naturally stimulated and reduce the incidence of baldness in the coming generations

ACNE

With the exception of pain, a skin eruption, especially when it is facial, is the most obtrusive symptom which one is called upon to treat Among such eruptions there is nothing so disfiguring—it is indeed, almost degrading—as a crop of pustules which covers the whole face of an adolescent who is just beginning to pride himself on his personal appearance

Acne affords one of the best examples of the paramount importance of the quality of the human soil in the causation of disease The acne bacillus is part of the natural flora of the healthy skin It inhabits the mouths of the pilosebaceous follicle and is normally a saprophyte On a soil of normal resistance it leads a blameless life But it knows how to lie in wait For

no sooner is the soil rendered favourable for its attentions than it is roused to activity, and provokes both a non-inflammatory reaction called a comedo and an inflammatory unsightly eruption, the familiar and vulgar pustule. A comedo or blackhead is a horny cyst which represents an attempt on the part of the horny layer to enclose the mass of acne bacilli as it would a foreign body.

The soil may be rendered favourable to the activities of the bacillus in various ways. Probably the most dramatic and, in a sense, the most difficult to understand, is the alteration of the composition of the liquor sanguinis by the intrusion of the testicular hormone at puberty. Most adolescent youths pass through a stage of pimples soon after puberty, about the time when they begin to shave, but so do many girls when they begin to menstruate. But as this is by no means true of all boys and girls it is evident that in addition to the hormone there is some other factor at work when the sad sight of a full crop of disfiguring facial pustules is presented to our gaze. The hormone does no more than tip the already trembling balance. And the balance was ready to be tipped because the margin of resistance had been lowered by faulty metabolism provoked by unsuitable feeding.

The state thus produced, the state of metabolically weakened defences, is coming to be regarded as increasingly important in the causation of all disease. The underlying theory is in reality very old, it was recognized by our forefathers under the name of diathesis, to which

various would be explanatory adjectives were attached, such as gouty and scrofulous. The theory seems once more to be in the ascendant, especially among dermatologists, who speak of the seborrhœic state, the symptoms of which differ but slightly if at all from those of the gouty or uric acid state with which a former generation was familiar. But in medicine names do not matter provided that they are not misleading, and it is satisfactory to note that the conception of the diathesis or soil as an essential factor in the equation of diseased states seems now to be coming into its kingdom of complete recognition.

When, in explanation of acne, we come to enquire into the conditions that are responsible for the lowered resistance we are driven to admit that there is room for much difference of opinion. We are safe in affirming that this weakening is due to some definite offence against the rules of personal hygiene, which in the majority of cases can be narrowed into a dietetic question. My views on matters dietetic are fully insisted upon in various places in this book, so that it is unnecessary for me to enter into any detail as to what line should be adopted in the presence of an acne. I should, however, like to express my firm conviction that in the case of a young, otherwise healthy man who is troubled with this humiliating affliction the fault almost invariably lies with the meat foods of which he is generally a large consumer. I have yet to come across a case in which the removal of butcher's meat from the diet failed to bring about a disappearance of

the pustules It is to be noted that in cases of acne the reactions are very leisurely. The good effects of a restrained diet take some time to show themselves, and the evil effects of a lapse from dietetic grace take so long that the association between cause and effect is difficult to establish Acne sometimes affects the back of the chest with the profusion of daisies on a summer lawn This is not as unpleasant as the facial eruption, but it is very awkward for young men who want to bathe in public When the eruption is on the back only and is practically confined to the skin overlying the trapezius muscle on either side, the cause is almost certainly either syphilis or tubercle This is a very important diagnostic point imparted to me in my early days by an experienced practitioner, which I have found most helpful

The active treatment of acne consists in the local application of sulphur and the subcutaneous injection of colossal manganese (Crookes) or of a suitable vaccine. These will hasten recovery when the dietetic foundation has been well and truly laid

HEAT STROKE AND SUNBURN

From the intensive manner in which it has become the fashion to cultivate sunshine and ultra-violet rays of artificial origin, one would not suppose that Nature is at great pains to protect all mammals from the full effects of the sun's rays Yet such is emphatically the case The protection is furnished by the

development of pigment and the growth of hair. The purpose of the hairy coat of most quadrupeds is certainly that of shielding some of the internal organs or perhaps the blood itself from certain deleterious rays of the spectrum. It must not be imagined that human beings are the only mammals that suffer from the effects of the undiluted rays; the phenomenon of sunburn occurs in the lower animals—white cows and white pigs for example—and it is a curious and highly instructive fact that in these animals the degree of sunburn has been found to depend largely upon their diet. It has been established that when fed on buckwheat these animals are more liable to sunburn than when the seed is omitted from their food. There can be no doubt that faulty feeding in children and fair skinned adults is responsible for a great deal of the sunburn and heatstroke from which so many of them suffer during the short but intense English summer. This is a fact which deserves a much deeper inflection than it usually receives. It affords an additional example of the importance of the human soil in the causation of morbid conditions. Chemical agents in common with microbes produce their most outstanding effects on a soil which has been suitably prepared.

Since it became the fashion for women to expose their arms and legs to the direct rays the fact that such exposure produces a luxuriant growth of hair on the extremities has caused dismay to a number of people who thought they were merely cultivating an artistic tan. What we call tan is a protection

possible only to a person who produces pigment in response to actinic stimulation. The person with fair hair and blue eyes cannot produce pigment and is therefore unable to tan. His immediate response takes the unpleasant and painful form of burning erythema which is often accompanied by blistering. If the exposure is continued, freckles develop and hair grows. Such is the only defensive measure—and a very inadequate one it is—of which the fair skin is capable in the face of continuous exposure to sunlight. That in every case the reaction to the stimulus of the sun's rays means a measure of physiological strain must be obvious from the fact that tanning and freckling are produced by destruction of the red blood corpuscles. Another significant fact which it is well to recall in this connection is that hæmoptysis is very liable to be provoked in consumptives by undue exposure to the sun's rays.

It is not surprising that the ill defined attacks with malaise and transient fever which occur in our sudden summers should so often be attributed to causes other than the true one. While such attacks are comparatively rare in adults, they are in a modified form, far more common in children than is usually supposed. The 'summer diarrhœa' of children and the 'stomach upsets' which are so frequent at the seaside, and are almost invariably attributed to eating fruit, are in reality due to a direct, intensive, and unaccustomed exposure to the sun's rays. In the present furor for the ultra violet rays, these facts

may easily be overlooked I am firmly in favour of giving children all the benefit which these rays are capable of conferring but in order to obtain the benefits it is of the utmost importance that exposure should be gradual The body requires to be trained to sunshine as athletes are trained to muscular effort The solar training should be gradual and piecemeal as it invariably is in the institutions where the effects of the rays have been scientifically studied In view of what happens in the case of white cows and white pigs when improperly fed it is most important that mothers and nurses should be warned against misfeeding their charges in hot weather The febrile attacks when they occur are nearly always attributed to the eating of raw salads and unpeeled fruit whereas they are in reality the outcome of beef mutton pork and other items of the good nourishing food with which the British matron persistently poisons her offspring

Every summer the daily papers publish accounts of adults mostly men who have been overcome by the heat These seizures used to be called sunstroke they are now described as heatstroke or heat apoplexy It would in all probability be correct to distinguish between sunstroke and heatstroke because the influence of the direct rays of the sun upon people who are unaccustomed to them differs in kind from the influence of heat only Heat plus light is recognised therapeutically as affording a stimulant more powerful than heat alone but one which is different in kind as well as in degree So far as our present knowledge

goes, however, it is only possible to recognise that excessive heat, whether or not it be accompanied by excessive light, is liable to break down the mechanism by which the temperature of the body is normally regulated, and thus to give rise to symptoms which are always alarming, and sometimes fatal. In extreme cases the patient may, indeed, be struck down and die within an hour, with symptoms of heart failure, coma, and convulsions.

The more usual form in this country is, fortunately, less dramatic. It begins with headache and dizziness, and proceeds to a feeling of great depression followed by nausea and vomiting. Visual disturbances are common, and there may even be coloured vision. Before the attack passes, there usually is a certain measure of unconsciousness. The temperature in such cases is always raised to a degree which, though alarming, is of itself sufficient to suggest the cause. For, whereas the febrile movement which accompanies most sudden disorders is usually moderate, say $101^{\circ} F$, in heatstroke it may rise to 108° or even 110° , a figure which is seldom otherwise seen save in the so called hyperpyrexia of rheumatic fever.

Nearly all cases of heatstroke are due to over-clothing. Most people are so afraid of catching a 'chill' that they will suffer the discomforts and dangers of gross over clothing rather than adapt their wear, especially their underwear, to the climatic conditions which prevail in the hot weeks. English people are curiously unimaginative and pig headed about such

matters It seems nowadays incredible that our soldiers during the Indian Mutiny were clad in the tight fitting, high stocked red tunic which in those days was the regulation kit at home, yet such is the case It was only by the vigorous representations of the medical officers that a more suitable and humane costume was eventually conceded by the authorities for the soldiers in the Boer War. The degree to which people—otherwise sensible people—will over clothe themselves and the grim tenacity with which they will cling to the bondage of thick, close fitting woollen underwear is tragically exemplified whenever there is a sudden heat wave in London The papers then tell us of muddle aged men who are suddenly overcome and stricken down in the market place and at the dinner table, and we are asked to marvel that strong men should succumb to a rise of external temperature which leaves most others unaffected I have on two occasions assisted at such catastrophes, one at a public meeting, the other a public dinner In each case the victim was a seemingly healthy looking man, on the stout side for whose sudden collapse there appeared to be no reason, until the process of loosening his garments revealed the degree to which he was over clothed In both cases thick woollen undergarments with long sleeves and long pants were worn with a stiff shirt and tight high collar Considering the number of people who are thus habitually over clothed, it is a matter for surprise that heatstroke is not more common than it is

The source of practically all the heat in our bodies

is the food which we consume. Some heat enters the body, as such, from without, from the sun, from fires and hot baths, but the ultimate source of most of it is the chemical energy of the food substances. The combustion of these substances takes place mainly in the ordinary muscles, both skeletal and involuntary, and, to a less extent, in some of the glands, notably the liver. The endocrine glands, especially the thyroid gland, contribute to heat production in a definite but hitherto unascertained manner. It seems, however, correct to say that the main source of heat is muscular contraction, and that in any general consideration of the matter the other factors are so unimportant as to be negligible. It is thus obvious that, for good or ill, the quantity and quality of food plays a prominent part in the heat regulating mechanism—a practical point which deserves every emphasis.

In the presence of an attack of what is believed to be 'a touch of the sun' the proper treatment is half a grain of grey powder followed by a mild saline laxative—magnesium sulphate for choice—rest in a dark room, and a diet consisting exclusively of whey and fruit juice for three days. For the erythema, which is always painful, Dr MacCullough of Toronto recommends the application of a saturated solution of magnesium sulphate, which should be freely applied and allowed to dry on the parts. An elegant preparation deservedly popular among women with sensitive skins is Parke Davis' 'Dermalac'. The ordinary lot *plumbi subacetatis* is grateful and comforting.

VI. INSOMNIA.

In furtherance of the endeavour to cultivate therapeutic common sense, to which I have devoted a good deal of my professional life, I have on more than one occasion made so bold as to indulge in the generalization that the problem of sleeplessness may be reduced to a mathematical equation, thus $\text{insomnia} = \text{dyspepsia}$. When, as in such a case, an attempt is made to explain a condition which is no more than a symptom by praying in aid another mere symptom, the situation would seem to demand a good many saving clauses and foot notes. I do not propose to indulge in any such, feeling that vagueness is nowhere more permissible than when considering matters connected with sleep, a phenomenon about which nothing is really known.

The type of dyspepsia which is most provocative of insomnia is certainly the hyper acid or sthenic type. And this is what usually happens. the patient goes to sleep normally, but is painlessly though widely awakened about 4 a m. after which sleep is impossible until about 7 a m. or later when the desire for repose becomes urgent. The wakefulness during these hours is often incomplete, there is a state of drowsiness in which the spectres of all the disagreeable and horrible things which have ever occurred to the hapless wight are marshalled before him with ghoulish and gleeful insistence. When this kind of sufferance has been in progress for some weeks, the patient shows signs of missing his proper amount of repose, the matter gets on his nerves, and he may even dread the approach of bedtime.

It is a curious reflection that this drama, which if allowed to continue may easily become a very serious tragedy, can be checked and cured by so simple an expedient as a few doses of common cooking soda. Fifteen to twenty grains of sodium bicarbonate in the form of three or four tablets of soda-mint, swallowed with half a tumblerful of hot water on retiring, will very often do all that is necessary in the way of neutralising the gastric hyperacidity, but it is well so to arrange matters that the dose can be repeated at about 4 a.m. if necessary. There are many elaborate preparations on the market for the relief of hyperchlorhydria, concerning some of which I can speak highly, notably bisodol and alkazane, but my present purpose is to emphasise the ease with which the condition can be cured by simple inexpensive everyday household means.

It would not be very difficult to draw a picture of the sort of rake's progress which a dyspeptic victim of insomnia is liable to make if the digestive cause of his trouble is not recognized in its early stages, but I forbear. I might, however, say that he would certainly start with veronal or some equally 'harmless' drug, and pass through 'rest cures' in nursing homes, suffer colonic assaults tempered by diathermy and high-frequency, drink waters at foreign spas, and compare symptoms at afternoon tea tables, until he would become a confirmed hypochondriac, a nuisance to himself and everyone else. And all for the lack of a little imagination, and a dose or two of sodium bicarbonate.

Now very common, and unfortunately on the up grade, is insomnia due to tobacco smoking. Whether the sleeplessness of smokers is due purely to dyspepsia, I do not stop to inquire, though I may say that potent as smoking is in the causation of indigestion of a sly sthenic type, it is probable that the direct effect of the habit on the nervous system has a good deal to say to the insomnia from which sooner or later all smokers suffer. Nicotine, it would seem, differs from most other poisons in the fact that it does not, by continued use, establish for itself a tolerance. On the contrary, the physiological tolerance with which we are all born wears itself out sooner or later, and when the limit is reached symptoms of intolerance appear. I need not attempt to enumerate these, but heart hurry and coarse tremors will occur to everyone as outstanding examples. Dyspepsia is a very common result of tobacco smoking, but being of gradual onset it is seldom attributed to its true cause. And with the dyspepsia comes insomnia, which, like dyspepsia, begins furtively, and is consequently saddled on to every cause but the right one. I have for many years charged my patients, and those who came to me for life assurance, to give up smoking before intolerance has had time to show itself, that is to say, to cease the stupid, and dangerous, and dirty habit on or before the forty fifth birthday.

Admitting that the generalization which ties insomnia to the cart wheels of dyspepsia is too inclusive, and selecting some other causes which may be placed in the same category, I find myself face to face with physical

cold feet: a condition which is so generally recognized as to find a place even in many a textbook. The treatment, however, would seem to be so obvious as to require no mention in any of the classics. And yet it is well that the young practitioner should be able to tell his patients with emphasis that there is not the slightest objection to hot bottles so long as they are employed with intelligence. They should be used to warm the foot of the empty bed an hour or more before bedtime, and be removed to a portion of the bed remote from the feet, or altogether ejected, as soon as the bed is entered. This, because of the well-known, but hitherto unexplained tendency of hot bottles to cause chilblains. Bed-socks, too, are very efficacious, and quite unobjectionable. Bed-socks have cured more insomnia in brain workers than all the 'perfectly harmless' hypnotics in the trade circulars. There is another good way of warming the feet, namely, the ventral decubitus, to which I shall return presently. A hot bath immediately before retiring, if not too soon after a meal, is simple and effectual, especially for the occasional insomnia of worry and fatigue. General massage for half an hour before sleep-time is very useful, but it has the demerit of being expensive. A fast is an excellent soporific. In one of his letters to Lord Chesterfield, Dr Johnson signed himself 'Yours Impransus'. I feel sure the philosopher slept soundly that night.

The two ladies who kept house for Herbert Spencer, and related their experiences of the sage in a charming brochure, tell us that he insisted that his bed should be

made over a dummy, so that the bedclothes should be comfortably loose to receive him. He had evidently had *bitter experience of the obstinacy of chamber maids and nurses, especially trained nurses, who tuck in the bedclothes so tightly that they have to be levered out if anything like freedom is to be possible.* The majority of people will tamely submit to these constricted discomforts, thinking that there is something esoterically hygienic about a bed which looks trim and neat. The vice of constriction, from which after all one can kick oneself free, is however as nothing to the vice of overloading with blankets and overheating generally, which people do not seem to be able to recognize as a cause of insomnia, especially in children. I remember being hauled out one fine summer night to see a child of about three years, who was said to be seriously ill. I found him in a cot drawn up near a large fire, he was clad in flannel pyjamas, almost buried beneath blankets and an eiderdown, and surrounded by hot bottles. *Escape from the toils of this foretaste of Hades* was effectively prevented by a sort of fishing net well secured at head and foot. Needless to say, he was perspiring freely, and was throwing himself about in a vain endeavour to get cool. Except for a slight cough, the most painstaking examination failed to reveal any abnormality whatsoever. So after giving instructions for the child to be given a tepid bath, and placed in a bed with one blanket, in a room with a window wide open, I went home. The next morning I received a message that the patient had had an excellent night and

seemed perfectly well. Such in minor degrees, no doubt, but identical in principle, is the explanation of hundreds of cases of sleeplessness, especially in children. And by no means only in children, for overloading with bedclothes is ridiculously common, almost as common as irrational clothing in the daytime, which is admittedly rampant.

Not very long ago I was asked to see a man in a nursing home who could not sleep. My doctor friend assured me that the patient had been examined most carefully from every point of view, but no help towards a diagnosis had emerged. The fact that the patient obtained very little sleep was one to which the nurses would testify. Also there was no doubt that he was losing flesh. When I came to examine him I found it quite difficult to undo the neck button of his pyjamas, and ventured to suggest that this constriction of his neck could account for his want of sleep. The suggestion was not well received, but in the long run it turned out to be correct. In seeking for a cause of insomnia it is imperative that all constriction, however slight and however seemingly unimportant, should be discovered and removed. I have known the unbuckling of sock suspenders on a railway journey to give sleep to a weary man who was so accustomed to them that he did not realize that he was wearing any.

If you will go into a children's ward when the children are all asleep, you will find the majority of them lying on their faces. When I first observed this and pondered over the cause, I was inclined to attribute it to an in-

instinctive attempt to relieve the heart and great vessels of the weight of the thymus gland, which in childhood is much more considerable than one is inclined to think. I am still of opinion that such is one of the factors, but I now realize that there are others. One is the drainage of the frontal sinuses; another the relief of the circulation in the pulmonary bases; but the most important is the re-location of the abdominal viscera in their normal quadruped position. Adults are very partially adapted to the upright posture, but children are scarcely at all so adapted; they therefore re-become quadrupeds whenever they get the chance, and nature finds in the long hours of sleep a splendid opportunity of redressing the balance. Why it is that the ventral decubitus should promote warm feet it is difficult to say, but there can be no manner of doubt as to the fact. I have often adopted this position in order to get my feet warm, and have never been disappointed in the result. It may be that the trunks of the large abdominal vessels, being thus relieved of the weight of the ponderous viscera, the circulation to the feet is facilitated. At any rate, whatever the details, it is obvious that the mechanism of the circulation generally is simplified by the ventral decubitus, with great advantage to its efficiency.

Another simple means of assisting the circulation during the night season and thus promoting sleep is to ensure that the bed shall be at least four inches higher at feet than at head. This brings gravity to the aid of the venous return, with consequent lessening in the force demanded of the systole. Ordinary fracture

blocks are all that is necessary, and where these are not obtainable, a little imagination will furnish substitutes. And let it not be forgotten that this inclined plane of the trunk means that the work of the all important ascending colon is now downhill instead of uphill, an advantage which needs no emphasis.

VII SNEEZING.

This convulsive act is usually provoked by direct irritation of the nasal mucosa. From the fact that the sneezing is often deliberately and habitually provoked, as by snuff, we must suppose that it affords pleasure to some people. The irritant, whether it be applied intentionally or accidentally, produces a copious flow of mucus from the upper air passages, which serves to flush them and bring away impurities. The flushing effect may usefully be brought about by soap and water or some mild antiseptic lotion. This kind of toilet of the nose should not be neglected by town dwellers, especially in times of epidemic catarrhal affections. Sneezing may be the result of reflex irritation from a distant organ. Bright sunlight will produce it in some people, and extreme examples are to be found amongst those in whom hay fever is provoked by inhaling and eating substances to which they are hypersensitive.

Sir Thomas Watson says Sneezing is another morbid symptom which, though it may appear trifling is not to be overlooked. One of our Bishops is subject to very inconvenient fits of this kind. He will

begin to sneeze and go on sneezing incessantly for a long time together. I believe that he finds an effectual remedy for these attacks in plunging his head into cold water.' I was surprised to hear a physician who was famous in my young days give vent to the opinion that when sneezing did not mean a nasal catarrh it always meant gout in the form of hyperacidity of the gastric juices, irritating the gastric branch of the vagus. It is not necessary to endorse this view of the pathology of the condition to realize that gastric irritation does very often cause not only attacks of sneezing, violent and prolonged, but also minor degrees of nasal irritation such as slight running of the nose. The violent attacks are usually quite sudden of onset and will usually be associated with a meal. The attacks are commonest about three or four hours after a meal. They often pass away as suddenly as they arrive, but in gouty people they will often last, causing great discomfort, until the gastric hyperacidity is neutralized by an alkali. I know one man who, though a careful liver, is subject to sudden attacks of extraordinary violence which, if allowed to continue prostrate him in a short space of time. Four soda mints in hot water afford him instant relief, and he never moves without them. I have known an attack of sneezing so violent as to amount to an acute paroxysm of hay fever to be almost instantly relieved by the result of an enema.

CHAPTER VI.

MINOR GLANDULAR INSUFFICIENCIES.

IN every question into which endocrinology enters it is necessary to bear in mind the important fact of the interdependence of the glands which constitute the system. I am fond of comparing them to the eight rowers in an outrigger boat, with the central nervous system as cox. These rowers are all pulling in the same direction; they are nevertheless, some of them, pulling one against the other. Now, in our clinical dealings with these glands, we are much too apt to regard each as an independent entity, instead, as we ought, to consider each as a member of a hierarchy, the whole of which is liable to be deranged when one of the members is seriously affected. As bearing on this generalization, let me indulge in another. It is the evil fashion to speak of 'hyper' or 'hypo' functioning of certain glands. Such a nomenclature expresses but a part of the truth, and that part a very misleading one. It is no doubt true that in the various degrees of myxœdema, for example, the thyroid is primarily at fault; but the outstanding

symptom which brings the patient to the doctor may point insistently to failure of some other gland. This occurred quite recently to me. A man of forty five came complaining of sexual impotence gradually acquired. He turned out to be a case of mild atypical myxœdema, appropriate treatment for which rapidly restored his sexual capacity. It also restored his domestic peace, which had been seriously impaired by unfounded charges of infidelity. Now, misleading as it generally is to speak of underaction of a particular gland, it is much more misleading—it is, indeed, generally a misstatement—to speak of overaction of any single gland.

Let us take the thyroid again. It has become a habit with many, who ought by now to know better, to speak of Graves disease as synonymous with hyperthyroidism. Now although the thyroid gland may be overactive in Graves disease, it is so in common with other glands—notably the suprarenal, the pancreas and the thymus—and the salient symptoms of the disease are due much more to the latter than they are to the thyroid, which, it is well known, is frequently not even enlarged. Whatever else it is, or is not, Graves disease is not a pure hyperthyroidism.

In the matter of underaction, it is generally evident that one gland is primarily at fault, in the matter of overaction that is seldom the case, except where there is a definite and local organic irritant—

such, for example, as suprarenal and pituitary tumours. The cause of overaction is generally a toxæmia, which irritates not one gland only but many, though in different degrees. In looking for a cause of underaction, it is always well to remember the possibility of long continued toxæmic overaction leading to exhaustion of the gland or glands in question. This is a frequent cause of thyroid insufficiency, because the thyroid, above all others, is concerned in combating endogenous toxins. That it is a cause of pituitary insufficiency I hope to show presently. Then, again, we must always bear in mind that when we have given, say, thyroid extract with success, our good results do not necessarily mean that the patient was lacking in thyroid essence. The good results may mean, and in many cases I am sure they do mean, that the extract has stimulated an opponent gland—say, the suprarenal or the pancreas—to increased effort. So that in giving the extract we are not necessarily supporting a flagging thyroid, we are possibly rousing a lazy suprarenal. We are, in fact, restoring the balance by indirect means.

If we consider the symptoms which in the various monographs are confidently attributed to the failure of the particular gland in question—say, the thyroid, the pituitary, or the renal—we cannot fail to be struck not only by the resemblance between many of these symptoms, but with their practical identity. With

substates of the thyroid, for example, we are accustomed to associate adiposity, infantilism, subnormal temperatures and subjective friosity, a slow pulse, somnolence and mental hebetude together with hairlessness and dermic pigmentation. In substates of the pituitary we find that all these conditions are not only present, but are regarded as characteristic—if not pathognomonic. In the case of adrenal insufficiency, some of them—notably, the infantilism—the low temperature, the hairlessness, and pigmentation are prominent symptoms. It is therefore evident that when one member of the endocrine hierarchy is at fault, the mere disturbance of the glandular balance is sufficient to produce certain symptoms of which one can only affirm that they point to a disturbance somewhere in the endocrine system—the pluriglandular syndrome, as it is called. There are some indications, though, so far, they are not many, which enable us to say which gland is probably the primary offender.

Confusion is most likely to arise between insufficiency of the thyroid and pituitary insufficiency. Adrenal inadequacy, though it may in its very early stages present some features which might lead to a mistaken diagnosis, is nevertheless as a rule sufficiently distinctive in its evolution. Here there is never adiposity, the change in bulk, if any, is always in the direction of emaciation. Moreover, however much the general symptoms—such as asthenia,

frilosity, and depression—may suggest thyroid or pituitary insufficiency, the urgency of the gastro intestinal symptoms should prevent any mistake. These are anorexia, diarrhoea, and vomiting of a nature progressive and intractable, which are usually accompanied by pain and tachycardia.

It is necessary to draw a distinction between adrenal insufficiency and Addison's disease. The tribute of the suprarenal glands to the blood stream may become deficient from various causes. Addison's disease, which is due to tuberculosis of the glands—a tuberculosis which is always primary to those glands—is only one of the causes. Its original description was so vivid, and the complete clinical picture which it presents is so striking that it has tended to obscure the minor manifestations of the glandular difficulties, much as myxœdema in its complete form so long obscured the lesser degrees of thyroid insufficiency. Perhaps the most striking objective signs of adrenal insufficiency are to be found in the vascular system. The tone of the bloodvessels is below par, as evidenced not only by the manometer, but also by the instability of the pulse and the absence of reserve power in the heart itself. This, when accompanied by a subnormal temperature, as is usually the case, and somnolence, with an over readiness to fatigue, physical and mental, may easily give rise to a suspicion that the thyroid or pituitary is at fault, but, as I have already said, the

emaciation, which is characteristic of suprarenal insufficiencies is not often seen in these others, and the gastro intestinal troubles seldom or never. Difficulties may nevertheless arise when, as frequently happens, especially after acute specifics, two or more of the endocrine glands are simultaneously exhausted.

With these preliminary reservations duly recorded, we can proceed to consider a few of the glands individually. First, then, as to the thyroid. Here we are entitled to speak of a primary insufficiency. We know that there are many clinical manifestations of this condition, such are the troubles in the skin and its appendages, the slow pulse, the sensitiveness to cold, the muscular fatigue, the mental hebetude, the intestinal stasis the menstrual disturbances, and, in children, night terrors and nocturnal enuresis. Hertoghe, of Antwerp, long ago pointed out that these and other symptoms might all be reduced to a causal common denominator which is expressed by the word *infiltration*. The thyroid is the great activator of metabolism, and when the fires burn too slowly material is deposited in various tissues. We may call this material mucin, if we like, its name is less important than the fact that it is a product of inadequate metabolism which is liable to be deposited, capriciously, so far as we can see, in any tissue or system, thus giving rise to very diverse findings. Just as a person with a high blood pressure may bleed from anywhere so a person with

thyroid insufficiency may become infiltrated anywhere. The selection of the site of the infiltration is even *more difficult of explanation than the selection of the site of the hæmorrhage*. And, when we consider the matter, it is not difficult to realize that a very slight degree of infiltration may bring about serious results. A slightly infiltrated endocardium, an *infiltrated intestinal mucosa*, an *infiltrated endometrium*, may very easily produce a train of symptoms sorely baffling to the clinician who fails to remember slight thyroid insufficiency and its powers of depositing unwelcome material in unsuspected and unlikely places. With this general outline in view, it is possible to form a mental picture of the method of production of almost any of the many morbid manifestations which we have come to associate with thyroid inadequacy, but in so doing we must be careful not to forget the possible responsibility of other glands for some, at any rate, of the details of the complete picture. Of the thyroid, more than of any of its congeners, it may be asserted that when it fails to ring true the others inevitably become jangled and out of tune. It is the leader of the glandular orchestra.

This statement, correct though I believe it to be, seems less so to-day than it used to seem. Some years ago it was thought that the parathyroids were more accessory or supplementary or immature thyroids, and commercial manufactures of thyroid extract included in the produce thus labelled, not

only the thyroid gland itself, but the imbedded parathyroids. Since it became evident that the old view was incorrect, and that the parathyroids were possessed of functions distinct from and, according to some observers, even antagonistic to, the thyroid proper, manufacturers have been careful to separate these glandlets from the thyroid itself, with the result that when we now prescribe thyroid extract we are exhibiting the pure article, whereas in former days we used to exhibit thyroid plus parathyroid. This is liable to make a serious difference in our results, and when I now fail with thyroid where I confidently expected to succeed, I generally find that the addition of a small dose of parathyroid, say, one twentieth of a grain, brings about the desired result. It must therefore be kept in mind that where in the pages which follow, thyroid medication and thyroid feeding are mentioned, it is to be assumed that thyro parathyroid medication and feeding are referred to. There are, of course still those who deny to the parathyroids any particular part in the endocrine hierarchy. In spite of these, however, clinicians have satisfied themselves that the extract of these despised glandlets, when orally administered, do bring about very satisfactory results in certain cases. Their action may be summed up by saying that they have a very favourable influence upon calcium metabolism and on certain conditions of auto-intoxication, for these glands would seem to have a very definite part to play in the defensive mechanism with which the

endocrine system as a whole is endowed. Clinically, parathyroid medication has been found to be exceedingly helpful in the treatment of benign ulcers, both internal and external—that is ulcers, gastric and duodenal and varicose ulcers. It is certainly very useful in tetany and in that condition of chronic toxæmia which has been called latent tetany. Its use in Parkinson's disease may or may not be attended with good results. If it fails to do good in rickets, the cause is to be sought in want of skill in guiding the necessary concomitants—such as diet, air, sunshine, and the like.

Minor degrees of thyroid insufficiency are at first very difficult of recognition. The observer's eye must be educated and his senses kept on the alert. *In order to enable him to do this his attention must be called to the importance which may underlie the apparently trivial.* It is this which I now propose to attempt.

That the thyroid secretion is essential to the development of the fœtus is shown by several facts. *Myxædematous women seldom become pregnant,* and when they do, in the absence of thyroid medication, they invariably abort. It is normal for women during pregnancy to develop an enlargement of the thyroid gland, which subsides to some extent after the child is born, but is continued during lactation. By no means the least important function of the thyroid gland is that of fixing the calcium salts in the body. *In order to permit of bone formation in the fœtus*

the mother is obliged to provide more secretion than under normal circumstances she requires, and the gland consequently hypertrophies. After the birth of the child, the same degree of this increment being no longer necessary, the gland tends to resume its normal proportions. In some women this prolonged call of pregnancy has the effect of unduly exhausting the gland, and they are unable in consequence to suckle the child, for lactation is dependent upon a due supply of thyroid secretion¹. Such women generally become obese and lethargic, and remain so for varying periods until the thyroid has had time to recover itself. Judicious thyroid medication will frequently not only enable a mother to suckle her infant, but will materially shorten the period of her post-partum difficulties.

But to return to the child. Unsatisfactory babies are almost invariably the subjects of thyroid deficiency. Other dyscrasias may act as contributory causes, more especially the syphilitic and the tuberculous, but even of these it may be said that some, at any rate, of their effects are due to their depressing action on the thyroid. It has more than once occurred to me to succeed in transforming an unsatisfactory child into a satisfactory one by a combination of grey powder and thyroid

¹ Hertoghe *Nouvelles Recherches sur les insuffisances thyroïdiennes*. Bulletin de l'Académie Royale de Médecine de Belgique, vi série tome **xli**, No 4.

extract after having tried both separately with very partial success

As a child progresses in years, deficiency in thyroid secretion may reveal itself in various ways. One of the most dramatic and alarming is the production of night terrors. I do not pretend to be able to explain the association between these unpleasant ebullitions and a deficiency of thyroid essence in the circulation, but I can most positively affirm that they rapidly disappear under the influence of thyroid extract. I have already shown that nocturnal enuresis, though it may own other causes, such as phimosis or intestinal worms, is in the vast majority of cases caused by thyroid inadequacy and is readily curable by the administration of thyroid extract. In the same connection I discussed the question of adenoids and made so bold as to suggest, concerning them that they constituted one of the stigmata of thyroid insufficiency. The views expressed may be briefly summarized as follows. Adenoids and enlarged tonsils occur in children who have an inadequate supply of thyroid secretion. The hypertrophic condition in each case is apparently the result of an endeavour on the part of the organism to supply an internal secretion as nearly allied as possible to the one which is lacking. If the hypertrophy is not very pronounced, and if it has been not very long in existence, great enough and protracted enough, that is, to produce complications, such as disease in the tonsils themselves or in the ears, then the exhibition

of thyroid extract will cause their regression. It is only when medicinal means have failed that operative interference becomes justifiable.

Enlarged lymphatic glands, so often observed in the necks of weakly children, are not infrequently due to thyroid inadequacy. Whatever their position and accompaniments, they are usually quite confidently attributed to tubercle, and are treated as such with more or less indifferent success. Arthur Latham long ago pointed out that even where their origin is undoubtedly tuberculous, there is no justification for removing them until other means have failed. But these glandular enlargements are less often due to tubercle than is commonly supposed. I have seen a good many children thus afflicted to whom I was emboldened to administer thyroid extract by the presence of some unmistakable coexisting sign of thyroid insufficiency. The enlarged glands in these cases have always been situated at the angle of the jaw, they have been hard and not tender, and have shown no tendency to suppurate. In this matter it is necessary to be quite sure of our ground before administering thyroid extract, because if the case be really tubercular the extract, instead of doing good, may very easily do harm. For some reason, which is so far unexplained, the majority of tuberculous people bear thyroid badly.

In tracing up to this point in its development the difficulties which may beset a child with an inadequate thyroid gland, it has not been necessary to draw

any distinction between the sexes. They appear to be equally affected. When we reach the age of puberty, however, we find that the boys have practically disappeared. There are, it is true, some few cases of delayed puberty—infantilism—most of which yield readily to thyroid extract, and there are also the cases of adolescent albuminuria which also yield readily to the same treatment, they are clearly a matter of calcium metabolism, but in the vast majority of boys and young men the changes which occur at this period appear to evoke such an activity of the thyroid gland as to protect them during the immediately ensuing decade from any evidences of thyroid inadequacy, always excepting those bony deformities which a previous insufficiency has stamped upon them. In the case of girls it is far otherwise. With them, it is precisely at the age of puberty that the worst of their troubles begin. But before separating the sexes I must make a generalization which refers equally to both. I stated at the outset that the prolonged call which pregnancy makes upon the thyroid gland frequently resulted in its exhaustion. The same thing must be said of the infectious diseases generally, more especially of those which are called the infantile diseases—mumps, measles, German measles, and scarlatina. It is evident that the internal secretion of the thyroid constitutes one of the defences of the organism against microbic invasion, for not only are sub-thyroidic children more liable to such invasion, but

the occurrence of one of these diseases in a previously healthy child very often proves the starting point of troubles due to thyroid inadequacy. The resistance to the effects of the poison makes a heavy demand upon the activity of the gland, and when the demand is over the gland becomes exhausted and its function depressed. A very large percentage of cases of rickets, adenoids, and nocturnal enuresis will be found on inquiry to date from one of the infantile febrile diseases. In connection with this aspect of the matter it is convenient to call attention to the very depressing effect which real influenza at all ages is liable to exercise upon the functions of the thyroid. I say real influenza in contradistinction to the transitory febrile attacks which are diplomatically so labelled to satisfy importunate relatives who thirst after a label. Real influenza, as is well known produces a degree of subsequent mental and physical asthenia which defies the ordinary tonics and remains obdurate to everything except time. Such, at any rate, was my experience until, on the theory of thyroid exhaustion, I began treating these cases with thyroid extract. The results of this treatment have always been gratifying, and I have no hesitation in affirming that if we were to realize more fully the exhausting effects upon the thyroid, and indeed of the endocrine system generally, of all acute specifics, we should be much more successful in dealing with the period of convalescence, which, to some natures, is even more trying than the disease itself.

This defensive power of the thyroid secretion is one which deserves to be emphasized. When it has attracted the general attention which it certainly merits, we may look for good results from the exhibition of thyroid extract during the course of all acute specific diseases. It should be remembered that, if it be sought for, an enlargement with tenderness of the thyroid will be found to be present in a large number of febrile diseases, notably in acute rheumatism. The headache which is so often present in such cases may reasonably be attributed to the pituitary, and the asthenia to the suprarenals.

Let us now return to our chronological order, and proceed to consider the troubles imposed by thyroid inadequacy as the years advance. We had arrived at the age of puberty, at and after which boys may be dismissed as affording an interest which is but occasional and fortuitous. Of girls it is a truism to say that the establishment of the menstrual function constitutes a crisis no less critical than that which occurs at the menopause, but it is insufficiently realized that at both periods the pivot round which the critical phenomena revolve is the behaviour of the thyroid gland. That there is a certain physiological antagonism between the internal secretion of the ovary and that of the thyroid is well established,¹ and the observed facts go far to prove that the

¹ 'Cardiopathies of the Menopause,' *Clinical Journal*, March 3, 1909

activity of the ovary normally provokes a corresponding activity on the part of the thyroid. The clinical evidence of this is provided by the enlargement of the thyroid, which is to be observed in the majority of women at each menstrual period. It is obvious then that, given a girl with a congenitally inadequate thyroid, the advent of menstruation will serve to emphasize that inadequacy, and thus bring into view various symptoms which up to that time had lain dormant. One of my cases of nocturnal enuresis¹ was certainly due to this cause. Without going much more fully into the matter than my present purpose permits, it would be impossible to offer an explanation of a clinical fact, of which any one may easily convince himself—namely, that both dysmenorrhœa and menorrhagia are more frequently than not due to an insufficiency of thyroid secretion. Persistent amenorrhœa, whether it be congenital or acquired, is almost always due to hypopituitarism and can generally be cured by pituitary feeding.²

That simple enlargements of the thyroid are due to an insufficiency of the internal secretion of the gland is now generally admitted.³ That migrainous attacks, more especially such as affect by preference the menstrual period, are due to the same underlying

¹ Adenoids, Nocturnal Enuresis, and the Thyroid Gland, p. 27.

² 'The Byways of Thyroid Inadequacy,' *American Medicine* April, 1914.

³ 'Organotherapy,' by H. Batty Shaw (Cassell and Co.)

cause, is a proposition which originated with Leopold Levi and H. de Rothschild,¹ and has been supported by numerous subsequent observations by these authors, and by others. Of dysmenorrhœa and menorrhagia enough has already been said. To this list of the disabilities which an inadequate thyroid may impose upon the female sex I would add one more—namely, sterility. From the fact that the thyroid enlarges during pregnancy, it may be taken as certain that the maternal economy requires an additional amount of the internal secretion during that period, and it is evident that if this additional quantity be not forthcoming, the pregnancy will be brought to an abrupt termination. In the case of women whose thyroid activities are markedly inadequate, this unhappy result will occur as soon as the first strain is put upon the gland—that is, when the next menstrual period is due. Many women who are labelled as hopelessly sterile are so only because of the general failure to recognise the paramount importance of the thyroid gland in the function of reproduction. I have known at least one case in which the repeated abortions were confidently attributed to syphilis, in which, nevertheless, the administration of thyroid extract brought a pregnancy to a most satisfactory conclusion. Where thyroid feeding alone is ineffectual, it is well to associate it with pituitary feeding. The addition of suprarenal feeding may even be necessary.

¹ Hertoghe *op cit*

So fascinating and, in a sense, so facile is the diagnosis of thyroid insufficiency that it threatens soon to supplant gout in the position so long held by the latter as the last resort of the perplexed practitioner. When you have been fortunate enough to produce strikingly good results by prescribing thyroid extract, you are tempted to attribute a great many ills to thyroid insufficiency which have no necessary connection therewith. To this mental attitude must be attributed the tendency of the moment, which is most apparent in France towards blaming the inadequate thyroid for many mutually exclusive diseases. From the already formidable list of maladies for which the responsibility has been cast upon the thyroid, two seem to deserve more than a passing notice—one of these is rheumatoid arthritis, the other is chorea. Now, neither rheumatoid arthritis nor chorea is to coin an expression, a self-contained disease—each of them represents a group of symptoms which may be produced by several different causes. In both, thyroid inadequacy may occasionally play a leading part, but either may occur in patients who do not show, nor ever have shown, the slightest sign of insufficient action of the gland. It has fallen to my lot to produce very brilliant results with thyroid medication in both these conditions, but in the majority of the cases so treated the results have been negative. In these diseases and many others it is to be presumed that an insufficiency of thyroid secretion

provides a soil which is favourable to the unhindered action of the toxins, and that consequently the rectifying of the inadequacy will do much to protect the individual against invasion, though it can seldom ameliorate matters quickly enough and profoundly enough to influence the results of an invasion which has already succeeded. Chorea is often very favourably influenced by thyroid extract, but only in those who are definitely subthyroidic. In those who present none of the ordinary stigmata of thyroid inadequacy, the extract does not succeed. Rheumatoid arthritis may be due to many causes, of which pyorrhœa, tubercle and thyroid or other internal glandular inadequacy are only some. The commonest and the most potent is a toxæmia of intestinal origin. If the stigmata of thyroid insufficiency are apparent in any individual case, thyroid extract will probably give good results, but even then only when combined with other accredited measures, directed to the removal of the causative toxæmia.

Women who have been perfectly healthy all their lives very often display a marked tendency to thyroid insufficiency about the time of the menopause. It is not only the reproductive organs proper which resign their functions at this period. A great many glands which are, in a manner which is still obscure, related to these organs, tend to become concomitantly deranged, and chief among them is the thyroid gland. The changes incidental to the menopause

often begin much earlier than is commonly supposed to be the case. In this country we are taught to expect them about fifty years of age. In France the recognised age is forty. But the age varies not only with race and climate, but also with the individual, and it is far from unusual to find both spinsters and those married women who have begun childbearing at a comparatively early age, exhibiting very distinct evidences of the approaching climacteric as early as thirty five years. Of such evidences a great many will be found to be very closely related to thyroid inadequacy, and a very considerable improvement, both subjective and objective, may usually be brought about by judicious thyroid medication. True myxœdema in my experience more often owns the climacteric as its cause than any other factor or combination of factors.

For reasons less obvious and in a manner less dramatic than the menopause, the conditions surrounding the mere advance of years tend to produce inadequacy of the thyroid function. It is not that the thyroid gland declines more rapidly than the other internal secretory glands, for all of them, even including the spleen, tend to diminish both in size and activity as the years advance. It is that the thyroid gland is so important to the economy that any diminution in its activities reflects itself unmistakably in a great many directions. So much is this the case that one foreign writer contends that if the activities of the thyroid could be maintained

unimpaired the condition of old age could never arise. It is not necessary to subscribe to such an extreme view in order to appreciate the value of suitable doses of thyroid extract in most of the troubles which are liable to beset the senile period. There are very few of these troubles whose treatment by the recognised means is not rendered more rapidly successful by the addition of thyroid extract.

I now pass to the consideration of some of the signs and symptoms from which we obtain confirmatory evidence when the existence of thyroid inadequacy is in question. Some of these I have already noticed in considerable detail,¹ and I need not therefore do more than enumerate them. Among the most important is the subnormal temperature, which is usually a marked feature, and is not only revealed by the thermometer but is also complained of by the patient, who protests that she never feels warm. The eyebrow sign (*signe de sourcil*) first described by Hertoghe, consists in a rarefaction amounting sometimes to complete absence, of the hair on the outer two-thirds of the eyebrow. This sign, when present, is certainly very suggestive, but in my own experience very perfect eyebrows are compatible with a marked degree of thyroid inadequacy, more especially when this has been provoked, as by an acute specific, after the patient has attained to maturity. Carious and irregular teeth should always

¹ 'Adenoids, Nocturnal Enuresis and the Thyroid Gland.'

excite suspicion. So likewise should delay in the eruption of the permanent teeth.

The most important among the signs which reveal a persistent deficiency of thyroid secretion are those which refer to the skin and its appendages. Amongst these, that which is most easily observed is the eye-brow sign just described. Premature greyness is generally, though not always, a sign of thyroid inadequacy. The same may be said of premature baldness of a pronounced kind. Both these degenerations are so common in comparatively young people in this country that little diagnostic value is attached to them. They are nevertheless both of them, very suggestive, and should always excite a suspicion either that the thyroid is not acting properly or that its functions have been gravely depressed in the past.

Abnormalities of cutaneous pigmentation are exceedingly common in all disturbances of the thyroid, whether such disturbances take the form of excess or perversion, as in Graves' disease, or of inadequacy, as manifested by myxœdema, rheumatoid arthritis, rickets, or climacteric disorders. The abnormalities in pigmentation which accompany such disturbances are not, as a rule, very obtrusive, nor, when present, must they be regarded as pathognomonic, but they afford valuable evidence in favour of suspicions otherwise aroused. Of these abnormalities, leucoderma is by far the most common. Amongst the grosser forms of skin lesion, that which is most frequently encountered in thyroid

inadequacy affecting adults is certainly psoriasis but eczema is almost equally common Radcliffe Crocker¹ found thyroid extract exceedingly useful both in lupus vulgaris and ichthyosis Urticaria, and transitory œdemas affecting the deeper structures, are concomitants of thyroid insufficiency to which Levi and de Rothschild attach very considerable importance In cases of what we may call submyxœdema in adults, there is usually a slight deposit of myxœdematous tissue under the skin, and this is more noticeable in certain parts of the body In such cases it will be found that although the skin of the hand and forearm can be pinched up with ease, that which overlies the deltoid and the upper part of the trapezius cannot be so pinched up In women, the area immediately below the breasts often presents the same phenomenon This condition has been called 'panniculitis,' an unfortunate name, though less unfortunate perhaps than the French 'cellulite'

The so-called obesity of the subthyroidic is not a true obesity True obesity is a caricature of the normal outline, hypothyroidic obesity is a caricature of true obesity The deposit of tissue favours certain regions Not infrequently there is a decided hump over the seventh cervical vertebra, so pronounced as to give to a patient who is really upright the appearance of stooping This hump occasionally attains to the size of a closed fist Its consistence is hard, giving a sensation to the fingers which is

¹ 'Diseases of the Skin,' by Radcliffe Crocker, 1903

quite unlike that of ordinary fatty tissue. The region over the deltoids is often covered with the same material, and that over the triceps almost invariably. In some cases the breasts themselves remain relatively small, though even then they are apt to be hard, but the region immediately below them is generally covered by rolls of tissue which may easily be taken for true fat. In both men and women the walls of the abdomen are furnished with the same material, but in women the most noticeable deposit takes place in the gluteal region.

Subthyroidic people, like the fully myxœdematous, though voluble about irrelevant matters, often seem curiously reticent about themselves. Their brains move slowly and they are very forgetful. It is therefore necessary to interrogate them very closely on questions which are purely subjective. That they are unduly sensitive to cold, that they have considerable difficulty in concentrating the attention, that their memories are unreliable, especially in small matters, that they are very somnolent, especially at certain times of the day, are all facts which must be elicited by cross-examination. Fatigue, muscular and mental, is very characteristic of the condition. Although this element is very rarely absent from a case, the fact of its presence is never volunteered. This is due as a rule to its having been quite confidently and often brutally attributed to 'nerves,' 'fancies,' 'vapours,' or whatever the epithet of the moment

may happen to have been, and the patient has been urged to rouse herself and take plenty of exercise. Needless to say, this is very bad advice, which not only causes a great deal of unnecessary suffering, but militates very decidedly against any tendency to improvement. Such patients demand physical and mental repose, and it should on no account be denied them.

I have said that in looking for a cause of under action in any gland it is well to remember the possibility of long-continued toxæmic overaction leading to exhaustion of the gland in question. Let me take an illustration from the pituitary, and in so doing say at once that the chronic overaction may own causes other than toxæmia. There are a fair number of people going about who are so much taller than the normal as to give rise to a suggestion of giantism—men of over 6 feet 2 inches and women of 5 feet 10 inches. To careful examination, a certain number of these people will present evidences not of pituitary excess, but of pituitary insufficiency. They have grown rapidly, outgrown their strength, as the saying is, in response to an irritated pituitary. At a given moment the relative pituitary hyperactivity dies down, to be followed by the relative insufficiency of exhaustion, and, although the balance may ultimately become redressed in some degree, that person's pituitary is always lacking in vigour, and without outside help will generally give rise to unpleasant symptoms. The preliminary excess is to be

seen in the abnormal height, the spaced incisor teeth, the large hands and the misshapen lower jaw, which is either receding or underhung, according to the age at which the pituitary excess began to die down. The existing insufficiency is evidenced by intolerance of extremes of temperature, by late oncoming, irregular and painful menstruation, by absence of half moons on the nails, and other irregularities of pigmentation, especially little black moles, 'beauty spots,' dotted about the body. These people are usually mildly, but definitely, undersexed, and tend to become obese on and below the waist line. But it is not any of these things which brings them for advice. They come under our notice for indefinable departures from health, headaches, asthenia, lethargy, and the various symptoms which are classified as neurasthenia. They are fortunate if they escape the stuffing of the Strasbourg goose type and the spanking of the anecdotal and too familiar masseuse. In any case, they will obtain no real relief until someone recognises in them the stigmata of their pituitary debauch. Into the various causes of the preliminary pituitary excess, it is not possible to enter here. I have already referred to the most important—namely, toxæmia—which is nearly always of intestinal origin, and I shall attempt to show presently that its correction is purely a matter of rational dietetics.

Before leaving the subject of the pituitary, there is

one matter upon which I desire to lay special stress It is well recognised that the hypodermic administration of pituitary extract raises the blood pressure. Great care is therefore necessary in applying this form of medication to those in whom the arterial tension is already too high That is a precaution upon which it is quite right to insist It should, however, be distinctly understood that this precaution is quite unnecessary when the extract is given by the mouth When introduced by the oral route the powerful pressor substance is not absorbed it is presumably destroyed in the stomach I have now on several occasions made very careful observations on this point, as the result of which I can quite confidently affirm that pituitary extract administered by the mouth even in very large doses, has no appreciable effect upon the blood pressure This is an extremely important fact, which if it were generally recognised would remove the timidity which now prevails about the exhibition of the drug to patients who are clearly in need of it

Pituitary feeding is said to produce no toxic effects Although, in a general way, I am disposed to agree with this, it has more than once occurred to me, owing to the absence of any other explanation, to saddle the treatment with the responsibility for occasional acute though transient rises of temperature which have occurred during its course The only harm which these febrile movements appeared

to do, was to occasion very considerable alarm to those in charge of the case

Cushing points out that one of the characteristics of hypopituitarism being an abnormally high sugar tolerance, a fair gauge for the dose of pituitary extract required by a particular case is the degree to which this tolerance is reduced by the treatment. My experience has been that the necessary sugar tests are so much disliked by patients that I never now suggest them

The inter relationship between all the glands of the endocrine system, which it is always so necessary to bear in mind, is nowhere better exemplified than in the association which they all seem to have with the organs of generation—the gonads, as they are conveniently called. Both in the male and in the female the gonads have been shown to have very intimate relationships with the thyroid, the pituitary, the suprarenals, the thymus and the pineal. Indeed, when one comes to consider each gland separately—its importance, its alliances, and ramifications—one is inclined to claim for each in turn the title of leader of the orchestra, which I have applied to the thyroid. One is reminded of those detective stories in which the reader is led to believe that each character in turn is surely the real culprit. In the play of the endocrines, I am, as a rule, firmly convinced that the thyroid is the star turn, but whenever I contemplate the responsibilities of the gonads, this conviction weakens. The ancients, who worshipped

the phallus as the origin of life were animated by a sound, if savage instinct, for latter day science has taught us that the secretions of the testes come very near to fulfilling that proud and comprehensive claim. The researches of Voronoff in testicular grafting,¹ which I have followed with the closest interest,² prove to my mind quite conclusively that the internal secretion of the male gonad can accomplish miracles beside which those achieved by thyroid extract in myxœdema pale into insignificance. It has been the fate of most of us to meet with completely negative results from the administration of testicular and ovarian extracts by the mouth and some people have been moved by these failures to push the negation to the point of denying to the gonads in both sexes any really active internal secretion. Voronoff's researches have taught us this clinically important fact—that, though quite inert when administered orally, presumably from destruction of the hormones in the intestinal tract, the internal secretion of the male gonads is extraordinarily active when applied in the form of grafts.

The potency of the male gonad secretion in altering the constitution of the individual is apparent in the profound changes which occur at puberty. These changes being normal and within the daily experience of everyone they are regarded as common place, whereas they are in reality among the most

¹ *British Medical Journal* October 21, 1922 p 763.

² *Ibid.*, January 20 1923, p 180.

miraculous phenomena in all nature. On a very different level but in their way exceedingly interesting and important are the facts that where the gonadal secretion is absent, as in true eunuchs, baldness never occurs, acne has never been seen and no case of glycosuria has ever been reported. It is also a fact that castrates are completely immune from certain parasitic skin troubles.

THYROID MEDICATION.—The dose of thyroid extract is quoted in most text-books at 3 to 10 grains, three times daily—a dose so large that it would be ludicrous were it not so dangerous. The proper dose is from one tenth grain to 1 grain, three times daily. With the exception of certain types of lunatics, it is only the most robust among healthy people who can take larger doses with impunity, unless these larger doses have been arrived at progressively from very small beginnings. There is one important fact which the prescriber of thyroid extract should keep ever before him, which is, that the more a patient requires the drug, the smaller is the initial dose which he will tolerate. This is probably to be explained as follows: The want of thyroid essence has given rise to the deposit of mucin in various parts. Under the influence of thyroid medication this mucin is liberated into the circulation with a view of its excretion. If it is liberated too rapidly, as by large doses it certainly is, there ensues such a surfeit in the blood that the excretory organs are unable to deal with it, and urgent symptoms of intolerance quickly arise.

Professor Murray warns his readers against the exhibition of large doses in advanced cases of myxœdema, lest the degenerated myocardium fail under the strain and cause sudden death. The warning is much needed. And not only in advanced cases, for there are in reality very few cases of whatever degree of inadequacy which can tolerate without very grave disturbance an initial dose of more than $\frac{1}{4}$ grain twice daily.

It is commonly stated that the symptoms of excessive dosage are tachycardia, palpitation, diarrhœa, vomiting, excitement and even maniacal symptoms. These certainly do occur, but only in the case of a dose so grossly excessive that its administration by accident would afford its only excuse. If the drug be given with circumspection, the fact that the limit has been reached will reveal itself quite unmistakably long before any of the above symptoms have time to develop. A little looseness of the bowels there may be, but there ought to be nothing resembling real diarrhœa. A certain degree of quickening of the pulse rate is to be expected, but if it amount to anything approaching heart hurry, the management of the case has been very unskilful. To quicken mentality and promote alertness is one of the physiological effects of the drug but it argues ignorance or carelessness when these results are allowed to reach the stages of excitement and restlessness. If it is intended to give thyroid extract over a period of

several weeks, it is necessary to make observations upon the temperature and pulse-rate. If the drug is really required, the temperature is almost without exception subnormal, especially in the evening, and the pulse-rate is as a rule slow. When the temperature rises to normal, the drug should be suspended at any rate for a time, and the pulse-rate, whatever its initial figure, should never be allowed to go above 95 without calling a halt. In the case of children, other than cretins, the body weight is a useful indication of the success of the treatment. So long as the weight increases the drug may be continued; as soon as the weight becomes stationary the drug should be suspended, and if the weight decreases the drug must be discontinued. Having ascertained by cautious increase from small beginnings the dose which best suits the patient, my usual practice is to continue the dose for three weeks. I then suspend it for a week and then resume it for three weeks, and so on. If the pulse rate is not slow at first, or if there is any other factor in the case which makes me fear intolerance, I give the drug for a fortnight, and suspend it for a fortnight. In the case of adult women, it is well to arrange so that the menstrual period should occur during an interval from the drug. Given in the doses above recommended, and managed in this way, there is only one sign of commencing intolerance for which one need be on the lookout: this is coryza. A sudden and profuse nasal catarrh sometimes surprises people who are

taking thyroid extract, and unless the physician realizes that such a thing is possible, he may attribute the catarrh to some ordinary cause and fail to discontinue the drug. Another signal which has occurred in some of my cases is a painless enlargement of the glands at the angle of the jaw. It has always disappeared on suspension of the drug. A slight tenderness of the parotids, one or both, sometimes occurs.

In a few instances, at the commencement of thyroid medication, patients have exhibited all the symptoms of acute pancreatitis—*i. e.*, a sudden attack of violent pain in the epigastrium, with vomiting, constipation and local tenderness, which have in each case all passed off in a few hours. The close antagonistic relationship between the activities of the thyroid gland and the pancreas is my reason for regarding the latter as the seat of pain. The sudden active stimulus of the thyroid extract upon a pancreas which for a considerable period had been free from that stimulus would probably result in such a degree of pancreatic hyperactivity as to cause the symptoms. The few patients in which these symptoms occurred were badly in need of the drug. Short of producing violent symptoms of this kind, it is by no means uncommon for patients taking thyroid extract in doses which appear otherwise to suit them, to complain of feelings of discomfort after meals. The symptoms are usually those of the acid type, and they generally yield to alkalis and bis

mouth Not infrequently, however, the combination of HCl and pepsin seems to be more efficacious Thyroid extract is said to be useful in the treatment of urticaria, its action presumably being that of utilizing fully the calcium salts in the diet This may be so, but it is to my mind quite certain that thyroid medication tends to provoke urticaria even in those who are not subject to this irritating complaint I have frequently been obliged to suspend the drug on this account, with the invariable result that the urticaria has subsided.

Thyroid medication will occasionally, but by no means always, regulate the bowels The stools of those taking the drug regularly generally become very light in colour This may be due to an absence of bile pigment or to the presence of fats in excess The latter cause is the usual one

When it is acting satisfactorily in an ordinary case of moderate degree, thyroid medication increases very largely the urinary output The occasional presence of albumin in the urine need not excite alarm, but the appearance of sugar should lead at once to suspension of the drug

If the best results are to be obtained from thyroid medication, the ordinary mixed diet of the present day requires some slight modification Carbohydrate foods and alcoholic drinks are recognised as depressors of thyroid activity I therefore direct those who suffer from thyroid insufficiency to be sparing in their use of them Common salt I also endeavour to banish from the dietary.

CHAPTER VII.

GENERAL HEALTH

To obtain clear ideas on the subject of general health, it is necessary to realize two obvious, but frequently overlooked, facts. The first is that, whatever his intellectual and moral development may be, man is essentially an animal, primarily adapted to certain conditions and surroundings, and the other is that the needs of civilization have imposed upon him the necessity for, or the temptation to, certain modifications of these conditions and surroundings. The problem which presents itself is this. How far and in what manner can the modifications be effected without impairing his animal powers—that is, his physiological or animal efficiency?

That man was originally a semi nude animal, living in the open air, who obtained his food by tilling the ground and hunting his game, may be taken as beyond controversy. These were the conditions and surroundings to which he was originally adapted. He has, in course of evolution, become a very much beclothed animal, who lives in houses, and obtains his food less by the sweat of his brow than by the

work of his brain. This change of environment ought, logically, to entail corresponding changes in his habits.

Certain changes have, doubtless occurred, but they have for the most part been dictated, not by considerations of physiological suitability, but by those of pleasure or convenience. Departures from health are almost always due to offences against man's animal or physiological requirements, and if we would fully realize what those requirements are, we must endeavour as far as possible to understand his primeval conditions and surroundings, untrammelled by the mists in which his pleasures or his convenience have enveloped him. This is the only scientific attitude from which to approach the subject of his general health for unless a scheme of living is in consonance with these general principles it must necessarily rest upon a basis which is theoretical, and therefore insecure. The whole subject is too large to permit of its consideration in any real detail, but some aspects of the matter, approached from this point of view, may be useful in illustrating the advantage of appealing to Nature for guidance rather than to fashion.

There can be no doubt that man was intended to be a working animal, and by work is meant something which must be done day in day out, whether the doing accords with the inclination or not. Physiological efficiency in every part of the body is dependent upon the regular exercise of function, and

what is true of each part is necessarily true of the whole. The man who does not work is never a reliable person, and he is seldom a healthy one—at any rate, for long. The normal individual demands legitimate outlets for his energy, and if he does not obtain them the energy becomes diverted into illegitimate channels. The majority of alcoholics, of hypochondriacs, and of neurotics, are people with nothing to do; and one, at any rate, of the reasons why women are more prone than men to functional nervous ebullitions is that, compared to the men of the same class, they are, or hitherto have been, the leisured portion of the community.

To be healthy, then, a man should work. It is, of course, not an easy matter to compel a person to work who has no financial incentive thereto; but there is plenty of voluntary work for those who have the leisure to devote to it, and it would be a good thing if all members of the profession were to impress upon idlers the incontrovertible fact that idleness is by far the most potent enemy to healthy existence.

Whether or not man was intended by Nature to be a naked animal is a subject which need scarcely detain us. The climate of the temperate zone and the exigencies of modern life have imposed a certain measure of covering upon all civilized races. The question for us to consider is whether the nature and the amount of the CLOTHING which fashion now prescribes are such as to be conducive to man's

physiological efficiency To elucidate this question we must glance for a moment at two of the functions of that important organ the skin

The first of these to be considered is the power in virtue of which it contracts to a cold influence and relaxes to a warm influence This power, in common with all the other vital powers, is dependent for its integrity upon its proper exercise Here, as elsewhere, use gives rise to increase of function, disuse to abeyance, or loss of function It is, therefore, obvious that the amount of clothing should be so regulated as not only not to interfere with this power but, on the contrary, to afford every reasonable opportunity for its exercise And we must not lose sight of the fact that the degree of efficiency of this function is a measure of the efficiency of the skin as a whole, because when one function of an organ suffers, the efficiency of the others becomes impaired. The right amount of clothing for a healthy person, therefore is that which, while sufficient to protect the body from the harmful exposure to temperatures in which contraction cannot prevent undue loss of heat, is nevertheless not such as to protect the body from such a degree of cold as is necessary to the proper activity of the contractile power In other words, the proper, the ideal, amount of clothing for a healthy person is the minimum which will protect that person from undue depression of temperature while following his usual employment.

If these conclusions, which are indeed sufficiently

obvious, be correct, it is clear that the great majority of people are grossly overclothed. To judge by the general practice in this matter, one would be driven to suppose that the object to be attained was the avoidance, not of harmful degrees of cold, but of all degrees of cold. This practice, objectionable as it is in the case of adults, amounts to something in the nature of a hygienic crime where children are concerned, for in addition to the interference with adequate metabolism which it causes in young and old alike, in children it militates against healthy development. *The overclothed child has little incentive to run about and exercise his limbs and his lungs in the manner essential to normal animal evolution, and so it happens that rickets, adenoids, and ill formed chests are among the children of the well to do classes, the rule rather than the exception.*

Parents should be reminded at every possible opportunity that their children are primarily young animals, and that the practice of coddling inevitably means defective development, with its consequent physical and mental degeneracy. A full measure of cold should always be allowed to reach the skins of young people. It keeps the cutaneous contractile power in good working order, and incites the children themselves to the muscular exercise upon which their proper development depends.

One of the best means of exercising this function of the skin is the cold morning tub. The exact temperature of the water to be used is a matter of

some importance, but it is one which can be decided only after a review of all the circumstances connected with each case. Speaking generally, it should be cold, but never so cold as to leave the bather chilled and miserable. The fashion of the moment prescribes the use of full length baths. There is no objection to these in the case of healthy people, but for those who are weakly, the sitz bath is infinitely preferable. In the full length bath all the blood is driven inwards to the internal organs, whereas in the sitz bath, the cold affusion being applied to various parts of the surface in turns, the determination of blood inwards is less sudden.

One of the advantages of the cold bath is that the whole cutaneous surface is thereby exposed to the air at least once daily. To reap this advantage to the full, care should be taken that the atmosphere in the bath room is as pure as possible, and this is best secured by the open window. The cold bath has other incidental advantages. One is that to obtain the desired reaction people usually apply friction to the skin with a rough towel. This entails a certain amount of exercise which is altogether to the good, and it results in a general stimulation of the whole cutaneous surface, which is highly conducive to its physiological efficiency.

One of the cutaneous appendages—namely, the hair—often suffers from want of adequate stimulation. There has been a good deal of ingenious speculation as to the causes of baldness, especially

as to why it should be comparatively common in men and relatively rare in women. The absence of physiological stimulation in the one case and its presence in the other supplies in reality the solution of the riddle. Men cut their hair short, and so deprive the follicles of the stimulus which the mere weight of long hair affords. In addition, hair which is long entails a great deal more brushing and general attention than hair which is short so that the hair follicles in man are deprived of a double measure of stimulus. If these facts were more generally recognised and acted upon, there would be less premature baldness than there now is. The drying process after the cold morning tub affords an excellent opportunity for thoroughly massaging the scalp by moving it freely on the underlying bone. If after this the brush is used forcibly enough to redden the skin premature loss of hair is very unlikely to occur.

The drying process should also be utilized for the purpose of applying friction to the ears. By this means the sclerotic process which so often gives rise to premature deafness may be indefinitely postponed.

The other function of the skin which it is necessary to consider in this connection is the excretory function. The cutaneous excretions are discharged either as fluid or watery vapour, and it is, therefore, very properly held that the clothing to be worn in contact with the cutaneous surface should be of an absorbent nature. The material should have the power that is, of rapidly taking up the moisture. Curiously enough,

authorities as 21 per cent of oxygen and 04 per cent of CO_2 and they go on to say that a rise of CO_2 to 08 per cent is distinctly harmful. The normal standard is obtained from the examination of air in the country, on mountains at sea, and in open spaces of towns and it is found to be remarkably uniform in all portions of the globe inhabited and uninhabited. The air in houses falls short of this standard the proportion of CO_2 very commonly reaching 05 per cent, and where a large number of people are gathered together, as in churches theatres concert-rooms and the like it not infrequently reaches 08 per cent or, indeed, 1 per cent either of which percentages represents gross impurity. The degree of impurity of an atmosphere is stated in terms of CO_2 because the amount of this gas is comparatively easy of estimation. The practice has one great disadvantage however, which is that it is apt to give rise to the supposition that the impurity consists solely in the presence of an excess of CO_2 and we are liable, in consequence, to forget the far more deleterious substances which an impure air contains. These substances comprise organic matters watery vapour, bacteria, and decomposing organic matter given off by the skin and lungs. It seems necessary occasionally to remind ourselves that the skin and lungs are excretory organs, the degree and importance of whose activities it is on account of their unobtrusive nature, very easy to underestimate.

It will be remembered that the fight for the admission

of fresh air into the old hermetically sealed bedchambers and sitting rooms originated with the campaign against tuberculosis. We were taught that consumption was a disease of impure and stagnant air, and were enjoined to prevent it by keeping our windows widely open. Obedience to this sound preventive measure soon brought recognition of the fact that fresh air not only prevented tuberculosis, but it improved the health and increased the powers of resistance to every disease. The gospel of the open window has been gradually accepted and is to day almost axiomatic, even in very uneducated communities.

But there are two very insidious enemies on our flank. The first of these and the greatest, is central heating. Central heating may have some merits, but it has the very grave demerit of abolishing the fireplace and the chimney. It is known that the presence of a chimney in a room, even though there be no fire in the grate, increases the movement of air through that room in a degree which is very surprising. The advent of central heating is destined to cause a serious diminution in chimneys. Many of the bed rooms in the modern flats have radiators but no chimneys, and it is certain that this will lead to a decreased resistance to disease in general and to respiratory disease in particular. I believe that one of the most formidable dragons in the path of the health of the community is this transatlantic tendency to the central heating of buildings and the consequent abolition of the ventilating activities of chimneys. Bad as I

believe a smoky external atmosphere to be, I regard fogs as less injurious than stagnant air in overheated houses. The first puff of wind blows the fog away, but it would take a daily tornado to clear the atmospheric filth from a block of centrally heated flats. And, unfortunately, hot water pipes and radiators are not the only offenders in this matter. Any method of generating heat which fails to connote an adequate outlet for the foul air constitutes a danger to the community. The ordinary electric stove is open to this objection, the gas fire is not.

The latter day tolerance of tobacco smoke in the atmosphere of rooms means the tolerance of many other kinds of atmospheric contamination. This is because the general standard of purity is thus lowered, and people will smilingly put up with a degree of atmospheric filth which they ought fiercely to resent. Tobacco smoke seduces them from the path of aerial righteousness into the slums and gutters of iniquity. The question of tobacco smoking is dealt with in the next chapter, but there is one aspect of the matter which may be considered here—namely, the relation of tobacco smoke to the incidence of respiratory disease in general, and influenza in particular. It is admitted that tobacco smoke is an irritant to the air passages, it must therefore depress the powers of resistance of those passages to microbic attacks. So much is axiomatic. Now influenza is a typical example of the kind of morbid activity which flourishes on tissues whose power of resistance has been lowered by irritants and other

causes I am quite satisfied that the recent ravages of this really fearsome disease have become widespread and malicious in proportion as tobacco smoking has increased in popularity and practice. It has been said that inasmuch as tobacco smoke contains formalin—a powerful antiseptic—it must necessarily be helpful against microbial invasion. This is mere nonsense. Tobacco smoke does not contain formalin, and even if it did the presence of this highly irritating substance could only increase the irritative properties of the smoke, while the amount of antiseptic activity would be altogether negligible.

The importance of **SUNSHINE** has long been recognised by hygienists, and recent investigations have strengthened the general faith in its efficacy. When the skin is exposed to the sun's rays, the nerve endings are stimulated, and the afferent nerves convey the stimuli to certain centres, which in turn distribute the stimuli to appropriate organs. That the stimuli thus applied are very powerful is easily recognised by the burning and freckling by which *fair skins respond*, and the *tanning of dark skins*. The capacity to produce the necessary protective pigment should be gauged in the case of children, and parents should be warned against the too sudden exposure which so often takes place in summer at the seaside. Dr. Rollier, of Leysin, has made a very careful study of the effects of heliotherapy, not only in the tuberculous, but in patients debilitated from any cause, and he insists that exposure should be very

gradual, even in very robust patients. If it is not, reactions are very liable to occur, such as rises of temperature, headache, loss of appetite, diarrhoea, and other gastro intestinal and nervous disturbances. In these islands the onset of summer is often very sudden, and children and young adults are encouraged to sun themselves at the seaside and on the river, in what may be called an intensive manner. This frequently gives rise to unpleasant consequences, unnecessary anxieties, and diagnostic doubts and thereby to the spoiling of a holiday which a little care would have rendered altogether beneficial. It is difficult at present to say which of the organs are overstimulated by such undue exposure, but the probability is that the nervous systems and the endocrine glands are made to bear the brunt of the attack.

A suitable DIET is necessarily the pivot round which a healthy life revolves. It is not only that a suitable diet restores our waste and reinforces our defences, it is that an unsuitable diet exhausts our energies. Material which is difficult of digestion and assimilation makes large and illegitimate demands upon the resources of the economy, with the result that energy which is required elsewhere is uselessly expended in the intestinal tract. It is a commonplace saying that we all eat too much, but a recitation of the 'credo' does not seem to bring any improvement in the practice. There is a very old and ugly saying that man digs his grave with his teeth, a very

general recognition of the truth of which has impelled medical men for over one hundred years to dabble in questions of diet. Until recently the researches were directed to the discovery of substances in the dietary of civilized man which were responsible for the obviously detrimental effects upon his health. Haig indicted uric acid, Hare accused carbohydrates, other persons have arraigned other substances. The discovery of the vitamins has completely changed all this. It has shown that the real villain in the piece was not a stealthy intruder, but an ambiguous absentee. Food is now seen to be harmful, not from what it embodies, but from what it lacks, and research workers are diligently dissecting the absentee so as to show us his component parts. I have no word to say against these researches, still less against the researchers. Nevertheless, I claim that this work, so far as we are at present concerned, is purely academic, and that attempts to utilize it in practice are liable to produce a false perspective. Our knowledge of these elusive vitamins is still very meagre. For a long time we admitted three only as generally necessary to salvation, recently a fourth has been added, and it is as certain as anything can be that there are more to come. For the present, then, we must treat them as a whole, just as we should try and treat endocrines as a whole, their various members are probably just as interdependent as the various ductless glands. To individualize them, as is now being done, is academically interesting no doubt, but it is dangerous

It is at least possible—it is even probable—that they only attain to their maximum effect in the presence of one another, that there is, in fact, a vitamine balance which is just as important to the economy as an endocrine balance. We must therefore, so frame our dietaries as to secure the inclusion not only of those vitamins which have already been labelled, but also of those which still await isolation. In order to do this we must go back to first principles, and ask ourselves what these vitamins really are. The answer is that vitamins are substances which are essential to growth, development, and the maintenance of health which exist abundantly in raw foods and are relatively absent from cooked foods.

Man is the only animal which is unable intuitively to select suitable food. It is obvious that he must at one time have possessed that power, and equally obvious that he lost it through the cooking stove. Whether or not Charles Lamb's *jeu d'esprit* concerning the origin of roast pork represents the real beginnings of cookery, I cannot say. In any case, it is certain that cookery is an art which, gaining on us gradually through the ages, has long since reached the point of overwhelming us. It is no longer our servant—it is now our tyrannical master. We think and speak and act as though all foods ought to be, must be, and shall be cooked. Cookery is an axiom, a condition precedent, a phylactery. It is impious to discuss it. It has permeated every class in the community not

only as a practice, but as an article of faith, and has unfortunately succeeded in dragging the medical profession at the tail of its triumphal car. Now, if we are to profit by the advent of the vitamins, we must modify this attitude, rearrange our outlook, and abjure this molten image. Cooked foods must be placed in the same category with alcoholic drinks—that is, they must be classed as luxuries, moderate indulgence in which is not only permissible, but often even praiseworthy. Our real foods—that is, the foods which are proper to us—are those with which Nature has provided us—namely, raw foods dairy produce, and uncooked fruits and uncooked vegetables. These should constitute the foundations of our dietetic edifice, our altar, on which the individual may offer up any burnt sacrifice of sheep and oxen, birds and little fishes, which fashion or taste may direct. Up to the present it has been our practice, and for many of us it will remain so until we die, sternly to forbid our patients to eat raw foods in any form, with the result that we are just as far from the successful treatment of certain general or diathetic diseases—such as gout, rheumatism, and other forms of arthritis—as we have ever been. These maladies rank high amongst the so called deficiency diseases—diseases, that is, which are directly due to an inadequate supply of vitamins to the economy. Nor do they by any means rank alone. I have satisfied others and more than satisfied myself, that most of the troubles of the endocrine system are due to a

similar deficiency, and that hormone medication seldom or never produces its best results unless it is accompanied by an abundant supply of vitaminous foods

It may be said that vitamins are to the endocrines what the endocrines are to the economy. But it is by no means in the relatively recondite department of endocrinology that you may confidently expect to reap rewards from insisting upon a plentiful supply of vitamins. In this direction the daily round, the common task, will furnish all you need to ask. Let me give two examples. Arbuthnot Lane has rightly attributed all manner of minor maladies, to say nothing of major, to chronic intestinal stasis. Now, anyone who is afflicted with this almost universal disability may very easily convince himself that simple stasis is due directly to vitamin deficiency. I could quote several cases of people who for years (in one case it was as many as thirty years) had never dared to go to bed without taking two grains of cascara or its equivalent who since adopting what may be called an intensive vitamin dietary, succeed daily, regularly, and royally in relieving their bowels without any assistance whatever. And there is another feature in this situation, which is supplied by the fact that, although such a person never is constipated, he is above all others the one who can afford to be, for stasis in his case does not mean the lethal process of putrefaction it means the benign function of fermentation. The *Bacillus coli* is like

ourselves, he changes his character according to his diet. When stuffed with devitalized flesh foods he becomes quarrelsome and poisons his host, but when fed on live carbohydrates, which are enabled by a rational dietary to reach him in an insoluble envelope of cellulose, he becomes lamb like, and assists his host in disposing of enemies. The rational outcome, then, of Arbuthnot Lane's teaching is not so much laparotomy as rational dietetics. If the latter is followed out, the former becomes unnecessary.

The other instance refers to the fierce and fantastic fashion of the wholesale extraction of teeth whenever the gums are found to be disordered. The word 'pyorrhœa' has become the plaything of the profession and the pitfall of the public. It ought to be neither, and will not be as soon as it is generally recognised that pyorrhœa is secondary to intestinal stasis, and that intestinal stasis, when it is not structural, is permanently curable by a vitaminous dietary. Several people mostly youngish women with seemingly good teeth, have come to me asking what they might do to be saved from the dental forceps with which they had been threatened, and all of those who consented to play the dietetic part of Nebuchadnezzar are still wearing the denture with which Nature provided them, surrounded and supported by perfectly healthy gums. Whether the vitamins have any directly beneficial effect upon the gums themselves, I cannot say, but I should think it highly probable. They are certainly very powerful

in preventing the deposit of tartar I must not however, be understood to suggest that established genuine pyorrhœa requires no treatment for I am firmly of conviction that it is a condition which urgently demands close and serious attention

It is to be remembered that cooked foods are very stimulating especially meat foods They invite to excess The appetite which comes with eating comes with the eating of cooked foods only Upcooked foods—as dairy produce salads, fruits and nuts—are not stimulating Try as you may you cannot over eat yourself on such simple fare Moreover, the sin of surfeit is usually the result, not of greed but of need The need is that of the economy, which in its determination to obtain a sufficiency of those vitaminous principles which the cook has reduced to a minimum, ingests a whole hefty haystack in order to be sure of the necessary needle

The gospel of a simple and natural diet is unlikely to make any headway with the public until members of the profession consent to do the work of propagandists Most people consider it their physiological duty to eat as much as they can children are systematically overfed, invalids and convalescents are coaxed and beguiled into overcoming the distaste for food by which the exhausted economy pathetically prays for peace, and any reasoning to the contrary is derided as dangerous faddism The proposition that we live by what we digest and not by what we place into our astonished and often rebellious stomachs, though

generally granted is seldom acted upon. The proposition itself, however, conveys but very partial wisdom, for it is necessary to realize that many people digest more than the economy requires, and that the mere process of digesting superfluous material is very costly in the matter of physiological energy. *You can exhaust yourself via your digestive apparatus, even more easily than you can tire yourself via your skeletal muscles.* The persistent overfeeding which is to day the practice of the majority is the cause of the chronic poisoning which is responsible for man's early decline and premature passing into nothingness. If people would but obey Nature's somewhat stern decrees in the matter of diet, man would surely retain his mental and physical efficiency for at least fifty years beyond the psalmist's exiguous estimate. A harsh dietetic régime is not a popular prescription and when it represents a complete change from former habits, it is too often found to disagree physically as well as mentally. The gastro intestinal system having accustomed itself to stimulating foods, is liable to go on strike when the stimulus is withdrawn with the result that simple fare gives rise to dyspepsia and other evidences of an insufficiently active digestive tract. *It is my custom in these circumstances to advise a gradual change from ordinary cooked food to the vitaminous diet of which modern science approves.* In this country, where people are in the habit of consuming four fat meals a day—not in-

frequently reinforced with beef tea at eleven and Benger at bedtime—it is best to begin with an attack upon breakfast and afternoon tea. The latter should be abolished lock, stock, and barrel. In this matter there ought to be no compromise whatever. The interval between the midday meal and the evening is badly required by the stomach for rest and recuperation from the labours of luncheon, and these should under no circumstances be denied to it. Women of the affluent classes cling tenaciously to this meal partly because it is in itself vicious, and largely because of the opportunities for gossip which it affords, and they will often surreptitiously adhere to it long after they have attained to righteousness in the matter of the others. The ordinary Briton has so fixed a faith in the moral efficacy of a full breakfast that it is often very difficult to persuade him to modify it down to something approaching the Continental level of a cup of tea or coffee with a roll and butter and some fresh fruit. The morning is the time of excretion and should be dedicated unservedly to that all essential beneficent process. The meal about which I have found people to be most amenable to reason is luncheon. Those who work with their brains are often conscious of lassitude and discomfort after luncheon, from which they are glad to be shown any reasonable road to relief. It seldom occurs to them to alter the dietetic habits in which they have been brought up, and it comes to them as a revelation—frequently a very welcome one—that a

beefsteak with vegetables and a rice pudding can be replaced by toast, butter, cheese, and fresh fruit, not only without giving rise to a profound debility leading straight to the cemetery, but with the strange advantages of unimpaired mental alertness and increased bodily vigour

With the evening meal it is not wise seriously to interfere at first. I do my best to discourage people from eating both fish and meat and try and induce them to substitute fresh fruit salads for boiled puddings. By degrees it is generally possible to replace the cooked vegetables by fresh salads and to encourage simplicity in other directions. I find it convenient to point out that it is what is eaten habitually that matters not what is eaten occasionally, so that the victim may look forward to an occasional dinner with his friends without appearing to be a food faddist or a crank. Owing to the general improvement in health which follows in the wake of the new diet, he soon learns to prefer it to any other, and remembers with horror the stuffy banquets which he had formerly consumed with pious unction. Women are more easily persuaded into these paths than men, not only because they take their appearance more seriously, are more attentive to detail and more persevering than men, but because the man always has to face the determined opposition of his wife to any change in diet, especially to any change which she regards as likely to enfeeble him. All women have an instinctive tendency to feed 'the

brute,' so that it is well for a medical man to convince the wife before expecting the husband to toe the dietetic line

OF FASTING

Human nature seems to have altered but slightly since the spacious days of the prophet Elsha. Then, even as now, maladies engendered the epic mood, and patients demanded that therapeutics should be on the heroic scale. To suggest the simple and obvious remedy was then, is now, and probably always will be, an offensive gesture full of contempt. When the holy man prescribed for Naaman's leprosy that the patient should wash himself seven times in Jordan, the leper turned and went away in a rage. This attitude of mind still obtains. It has more than once happened to me to find that I had caused a similar deep annoyance by prescribing so simple a measure as fasting for a man who was convinced that his condition was worthy of an abdominal operation. The great, indeed the only, thing against fasting is its extreme simplicity and its freedom from any kind of danger.

The origin of fasting as a religious exercise is lost in the mists of antiquity, but it seems clear that in common with all forms of physical discipline pontifically imposed, its primary intention was purely hygienic. But the practice fell upon evil days, and until quite recently it shared with blood letting the opprobrium attaching to the faith of our fathers in measures of fairly drastic depletion. And, like blood letting, it has

of late been seeking to prove the essential wisdom of our fathers by reconquering a place in the sun of reasonable recognition

Some years ago a Dr. Allen of New York put forth a claim for 'starvation' in the treatment of diabetes. The claim was strongly sustained by a great number of physicians, and Allen's 'starvation' system held the field until the appearance of Banting with his wonder-working insulin. Allen fasted his patients for three days—a period which sufficed to render the majority of them sugar free, thus affording a scientific basis on which to erect the superstructure of an appropriate dietary. In parenthesis, let me say that 'starvation' is hardly a correct word to use in this connection. The patient is undoubtedly deprived of food as taken by the mouth, that is, he is fasting, but inasmuch as he is living on his very ample reserves, he is not in reality starving. The point is not without its importance in the psychology of the situation as it often presents itself in discussion.

The rationale of fasting is not difficult to recognize. And yet, though some of those who practised Allen's methods may have realized that if abstinence from food would rid the blood of superfluous sugar it would probably debarrass the system of sly and subtle accretions which worked mischief in other directions, the majority certainly drew no such inference. In the case of the most outstanding of these mischief-workers—namely, ordinary adipose tissue—though fasting is an obvious means to its reduction, I failed to find it recommended

in any textbook to which I had access. Reduced to a simple formula, the rationale of fasting may be expressed as a procedure whereby the *vis medicatrix naturæ* is given *carte blanche* to perform any eliminations and repairs which the ordinary artificial mode of life may have rendered necessary, without interference from the stupid and arrogant hand of man. When one thinks that the present dispensation demands that people leading sedentary lives should eat four fat meals a day (when even one-and-a-half would spell a ridiculous excess for most) it is not difficult to realize that the amount of ill digested, mal assimilated, and partially oxidized material which is deposited in suffering joints, muscles, nerve sheaths and viscera, must be simply enormous. Of such is the kingdom of the insidious pathological devil.

When this poisonous material accumulates, it is orthodox and respectable to attack it by drugs, by vaccines, by baths, waters, electricity, and physical methods generally, most of which, though they may better the major symptom, are all too liable to do harm in other directions. The one method, which is at once simple, efficacious, inexpensive, and wholly innocent, of surprising side issues is the one which is least often employed by the regular practitioner—namely, such a complete abstinence from food as will enable the oxidizing and scavenging activities to perform their remedial task untrammelled by the unpertinences of pseudo scientific zeal. More than half the rheumatoids and sciaticoids, the ptoses and neuroses, the pyorrhœas

and diarrhœas, the toxæmias and anæmias, the distempers and the bad tempers of this distorted life are originally and essentially due to an accumulation of suboxidized material in the tissues, which, so to speak, manures the soil and renders it fit for the ever ready attentions of the crouching bacillus. A descent from the lofty heights of therapeutic pomp and circumstance to the earthy level of the hunger and boredom of a fast, if made compulsory upon all and sundry, would induce the incidence of disease more strikingly than any other measure which could be suggested. But I fear it will never be done: the astonished recipients of such a prescription would turn, like Naaman, and go away in a rage.

I have said that fasting is seldom, if ever, prescribed by the canonical profession. That is one of the reasons for the success of many of the unqualified healers, for most of them insist upon measures which amount to total abstinence from food, though the fact itself and its paramount importance are cleverly concealed. Once, when young, I made so bold as to inquire from one of these gentry (he was very successful though quite illiterate) why he starved his patients. His reply, "Because animals never eat when they are ill," was significant, humiliating, and convincing. Why must we allow quacks to prance pragmatically among the prophets?

If fasting is to confer the benefits which some of us claim for it, the fast must be carried out on a pre-ordained plan, the details of which must be carefully

observed. Fortunately, they are not irksome. First of all, then, a purgative is necessary. This is to ensure that no undesirable matters are absorbed from the intestinal tract during the period of abstinence. The nature of the purgative seems to me to be unimportant, provided that a sufficient quantity is taken to render the evacuation certain, though it is right to add that some people, notably Dr. Guelpa, opine that brisk saline catharsis continued through the whole fast yield the best results. Another good, though not essential, preparatory measure is a hot bath. The skin is the largest excretory organ, and it is wise to see that it is in working order. Thus depurated, the patient begins his fast. He may drink water plain, the water in which bicarbonate of soda and other simple alkaline salts have been dissolved, but otherwise nothing, absolutely nothing, must pass his lips for the prescribed period, which we will suppose to be three days. If he should be so misguided as to take anything with a food value, his fast will be very difficult to bear, but if he takes nothing save simple alkaline fluid, the discipline is quite bearable. On the first day there is a desire for food at the usual meal times, but this soon passes off, especially if at these times the patient is able to compose himself for 'forty winks,' for which, for some curious reason, there is always a decided inclination. On the second day the desire for food is definitely less, and on the third day it seems almost entirely to have disappeared. While the fast is in progress it is as well for novices to take things easily.

Some may prefer to stay in bed or on a couch, but it is not well to encourage anything which leads to the direction of self pity. The mind should be kept occupied, if not with work, then with detective stories and 'thrillers'. There is no objection to relieving boredom by baths, massage, and such like physical means, and gentle exercise in the open air is very desirable. *Alkaline fluids must be insisted upon, for,* in their absence, acidosis in rather an acute form is very liable to develop, and acidosis makes the patient very uncomfortable and unhappy.

On the morning of the fourth day the fast is broken. Lest the somnolent stomach be surprised into rejection of the unaccustomed material, the meal is a very light one. A cup of tea and some fruit is usually sufficient. The other meals on the same day must also be small in quantity and vitaminous in quality.

There can, I think, be little doubt that fasting has a moral as well as a physical value. Bacon tells us that 'by the interchange of contraries shall nature be cherished and yet taught masteries'. The cleansing of the internal physical man by the complete oxidation of sub-oxidized material has its moral counterpart in the experience gained of the ease with which we can subdue the gluttonous savage that resides in most of us, and the practical demonstration of the pleasing fact that this kind of mortification of the flesh does indeed give definite stimulus to mental as well as to bodily activity. When I am fasting, I always feel that the dull, drab, unattractive discipline is good for

me, that I am doing something which is eminently worth doing, and when at last I break my fast, I suffer a vague self righteous feeling that by so doing I fall from grace and forfeit my right to be numbered among the elect. But I know of a certainty that my nature has been cherished, and yet taught masteries.

A two days fast is an excellent preparation for the change from ordinary food to a vitaminous diet. The details of that diet are simplicity itself. They consist in adhesion to what the Americans call the principle of 'unfired' food. When it is realized that this seemingly severe restriction includes all dairy produce and all fruits and salads with the necessary addition of bread, the area of selection appears wide enough for those who are content not to overeat themselves. Whether alcoholic drinks do or do not contain vitamins of any sort is one which has not been definitely settled. The probability is that beers and wines do contain them, and that spirits do not. It is therefore my custom to forbid the latter, while turning a blind eye to the former. It is certainly much easier to persuade people to adopt a rational scheme of feeding if you do not cut off all their little luxuries at one blow, and though I never directly advise alcoholic drinks, I do not seek to stop them in the case of those who are accustomed to take them in reasonable quantities. The same attitude may safely be adopted in the matter of tea and coffee. These are both agreeable stimulants which in a general way may be regarded as harmless.

The alternative of increasing the output by stimulating the oxygenating processes brings us to the question of **EXERCISE**. Here, again having regard to the enormous personal differences which exist, it is quite impossible to lay down any hard and fast rule. This, however may be said with confidence—that he who eats much must exercise much, and the man for whom much exercise is impossible must meet the situation by consuming little. It is a common experience that brain work in the study is with some people at any rate an even greater provoker of appetite than muscular exertion in the fields. The explanation of this fact is too involved to enter upon here, but it may be asserted that the hunger begotten of study should not be appeased in the same manner as that which is begotten of muscular exertion. For the latter, a plentiful supply of nitrogenous foods, especially of meat foods, is sometimes considered appropriate. Although very decided doubts are now expressed upon this point it seems generally to be agreed that such foods when taken in abundance by a sedentary worker lead inevitably to impaired health. The man, then, who has ample opportunity for efficient oxidation may be left to work out his own dietetic salvation, but he who is deprived of such opportunity should have it explained to him that, be his study begotten appetite never so vocal, he must satisfy it otherwise than by meat foods and alcoholic drinks.

Of exercise in general, it may be said that the

necessary amount depends upon individual requirements, a powerful factor in determining which is the amount of food consumed. It also depends to a great extent upon individual opportunity, and the amount to be recommended in each case can be arrived at only after due consideration of these points. The best kind of exercise is also a matter which must vary considerably in each case, though riding and golf are as a rule, appropriate to both sexes and all ages. The objection however, which is to be urged against these and most other exercises, with the exception of rowing is that they contribute nothing to the development of the abdominal muscles. The importance of keeping these muscles in good condition must be evident to those who remember that, practically, they constitute the anterior abdominal wall, and that if they are allowed to become lax they fail to give adequate support to the internal organs. There was at one time a good deal of talk about the responsibility of the 'abdominal pool,' or 'splanchnic lake, for deficient metabolism and practitioners at health resorts especially in Germany, are still in the habit of attributing a good many of the morbid conditions which they are called upon to treat to 'abdominal venosity.' These are in reality all synonyms for the same thing—namely, the state of matters which is brought about by lax and undeveloped abdominal muscles.

To keep these muscles firm and in good order their regular use is essential, and as the ordinary

forms of exercise help but little in this direction, it is evident that we must resort to an exercise *ad hoc*. Various forms of such an exercise have been recommended, but the one which seems to be the best, in that it is not difficult violent, or time consuming is the following. Wearing as little clothing as the circumstances permit, and with the windows wide open, the patient lies on his back on the floor, with his feet under the opened lowest drawer of a chest of drawers or anything else which will keep his feet from rising from the ground. With his arms fully extended above his head and touching the floor in their whole length, he proceeds to pull himself into the sitting posture by means of his abdominal muscles, keeping the knees unbent. Care must be taken not to advance the arms beyond the line of the trunk, and to perform the movement deliberately. This will be found a very trying discipline to those who are unaccustomed to use their abdominal muscles, indeed it is to many quite impossible, so that it is wise to begin with a modification which consists in allowing the arms to be crossed on the chest while the rectus muscles pull the trunk forward. It is sometimes contended that these exercises are too severe for the majority of people with really lax abdominal walls and that consequently they may give rise to hernia and other troubles unless used with a *degree of circumspection*, which is seldom forthcoming in the ordinary person. There is much truth in this objection, and in cases in

which it is clearly applicable the patient should be advised to study F Hornbrook's work on the ' Culture of the Abdomen ' (Heinemann)

This exercise should be done two or three times each morning to begin with, and when it can be done seven times without undue effort, the arms should be placed above the head as first described. With the arms thus placed, the number of times must again be reduced and then gradually increased as before. Another exercise which may immediately follow on the foregoing is performed as follows. The feet are released from the chest of drawers, and, still lying flat on his back, the patient raises the fully extended legs until they are at a right angle to his trunk. While this is going on, the hands are engaged in pinching up the skin and otherwise massaging the abdomen. These procedures may sound formidable, but they are in reality not so. If they are done regularly, without hurry or strain, they take little time and can do no harm, while their effect in keeping the figure from becoming aldermanic is very marked.

A good substitute for muscular exercise is to be found in baths of various kinds combined with massage. These are undoubtedly best administered at a health resort, under the guidance of an experienced physician who is accustomed so to graduate them as to obtain the maximum benefit with the minimum of fatigue. Hot baths followed by massage may be administered at the patient's own house, but

when this is done, careful instructions should be given as to temperature and duration. The temperature of the first few baths should not exceed 100° F, and their duration should be limited to ten minutes. Both may be cautiously increased until the one reaches 105° F and the other twenty minutes. Each bath should be followed by massage or shampooing, and thereafter the patient should be swathed in flannels and encouraged to perspire by the administration of hot water. Such baths are however, inferior to the hot wet pack which I shall presently describe.

Of other exercises which are adapted to ordinarily healthy people who have insufficient opportunities for spending much time in the open air, skipping holds a high place. Although usually regarded as suitable only to children, it is in reality a very excellent discipline for middle aged and even c'derly people, when undertaken with due regard to the necessities of each case. It exercises every part of the body, including the abdominal muscles, and subjects the internal organs to a species of massage which is very beneficial. There are several systems of exercises, Swedish, Danish, and others, now in vogue, the majority of which, as entailing no violent exertion, and as tending to keep most of the muscles in good working order, may be confidently recommended to healthy persons. All these exercises should, if possible, be performed daily, as a matter of routine, in the morning before the bath, and

preferably in a room the window of which is wide open.

The question of the temperature of the daily bath is one which is often referred to the medical man. I have already said that as a general rule it should be cold — that is, of a temperature between 40° and 60° F. This however, refers only to healthy people under middle age, in whom a reactionary glow is easily obtained by the aid of a rough towel. To such people a cold bath is very invigorating; it promotes metabolism and effectually exercises the contractile power of the skin. If, however, it should not be followed by a reactionary glow, or if it should cause headache or loss of appetite, it should be discontinued. People who from any cause have a blood pressure which is definitely above the normal, always complain of discomfort after a cold bath. The contraction of the peripheral arterioles increases the arterial tension, and if the baths are persisted in, accidents are very liable to happen. I have more than once been led to the discovery of an otherwise unsuspected vascular disorder by complaints of headache, giddiness, and the like, which have been positively referred to the cold morning tub.

Where for any sufficient reason it is decided that the daily bath should not be taken quite cold, it is necessary to decide at what temperature it should be taken. A tepid bath is one which, though definitely below the normal temperature, is, nevertheless, not so cold as to cause much contraction of the cutaneous

vessels—that is, from 85° to 95° F. A warm bath is one which is about the same temperature as the surface of the body, and causes neither contraction nor dilatation of the cutaneous vessels—that is, from 90° to 98° F. A hot bath is one which is substantially higher than the normal body temperature and tends to cause dilatation of the cutaneous vessels—that is from 98° to 105° F. In connection with the hot bath, it is to be remembered that its effect varies not only with its temperature, but with its duration, and, further, that there are a great number of personal idiosyncrasies in the degrees of heat which can be tolerated. Women, as a rule can take baths at much higher temperatures than men.

Very hot water causes an initial contraction of the cutaneous vessels, but if the bath be prolonged, this effect gives way to one of dilatation, and the ultimate result is one of general relaxation. If therefore, the hot bath is substituted for the cold morning tub, it should be made clear that the exposure to the hot water, though it should not be so prolonged as to produce a general relaxation should nevertheless be prolonged enough to enable the cutaneous vessels to recover from their initial contraction. If a daily hot bath of long duration is desired, it should be taken, not in the morning, but at night, when the day's work is over and relaxation is normal and physiological.

It is said by some physicians chiefly on the Continent, that a daily bath is not only unnecessary,

but actually injurious, on account of the fact that the natural oil of the skin is thereby removed. Such a view has nothing whatever to support it. The 'natural oil' of the skin is an excretion, and it should be removed at least once daily with the aid of soap and a due amount of friction. For those who are unable to take a cold morning tub the warm bath of not more than 100° F is the most generally suitable for these necessary daily ablutions. The duration of such a bath should not exceed five minutes.

CHAPTER VIII.

ADVANCING YEARS.

THE age at which most men begin to realize that the hand of time is firmly upon them is usually considered to be about forty five to fifty. This is the mid day of life, and the 'destruction which wasteth at noonday' which the Psalmist classes with 'the pestilence which walketh in darkness,' refers, according to Paul Bourget, to the arrogant self complacency which too often besets successful men at this age. The process of revolving in the circle of his own perfections tends to blur the victim's perspectives, leading him to think that success, say as a financier, entitles him to lay down the law on any subject however specialized and intricate, his ideals are lowered, speech becomes more Prussian, habits more Parisian; food is more, alcohol rather more, tobacco much more, while exercise is less. And, worst of all, hot baths are substituted for cold and woollen underwear for linen.

As we contemplate such a man, measuring his characteristics, we feel that if he does not display any overt signs of definite physical degeneration, a careful search would discover them. And we need not search very far, for he is generally bald and obese, two facts which usually escape the full interpretation which is their due. Of the obesity I would repeat with

all the emphasis at my command, that there is no excuse for allowing, as the published tables do, that an extra stone added to the twenty five year old weight is permissible to a man of forty five, and we should impress upon people with much stronger inflection than we usually employ that overweights are the unsatisfactory lives they have been proved to be

The last word has not been said upon baldness, nor upon another characteristic sign of advancing years—I mean greyness of the hair. On the subject of greyness, Sir Humphry Rolleston quotes the Sage of Norwich as saying, Hairs make fallible predictions, and many temples, early grey have outlived the Psalmist's period. Ernest Clarke holds that grey hair in relatively young people is usually caused by eyestrain, more especially when the greyness is diffuse instead of creeping, as it ought to do, gradually from stealthy beginnings in the temporal regions. This suggestion has more than once put me on the track of a successful diagnosis in patients who had suffered much at the hands of many. In parenthesis, let me say that it is curious to find how many medical men are unaware of the fact that the temporal region is so called because the tell tale greyness of the hair first appears there. Bacon on this question is suggestive as in all else. 'Hasty grey hairs without baldness,' he says, 'is a token of long time.' But if early grey hairs be accompanied by baldness he regards them as of ill omen. An old friend of mine used to say that the sudden greying of the hair, especially when accompanied by

baldness, which sometimes occurs in middle life with startling rapidity, is very suspicious of the onset of malignant disease. This is another suggestion worthy of note. The memory of it has more than once put me on guard in spite of negative responses to very searching examinations.

Of our imaginary fat friend's eyes there is little to say. The onset of presbyopia has probably driven him to an oculist, or more probably to an optician, because he is surely of opinion that opticians, as practical men, know more about glasses than those damned doctors. And I think it quite likely that an optician may do all that is necessary in such a case as we are considering, because the super successful man is nearly always emmetropic. Perfectly normal vision is an inestimable gift of the gods which few of us possess. It often makes all the difference between conspicuous success and unaccountable failure. Looking back to some of the contemporaries of my early days, among whom were several who failed to fulfil a tithe of their promise, I am now satisfied that careful refraction would have rescued that one from alcohol, this one from melancholia, and that other from the lack of stability which is the despair of parents and guardians. Of two young men of outstanding promise in my young days it was correctly predicted that X was too clever to succeed, and Z too clever to fail. It is interesting to me to recall that X wore glasses and Z did not. In these days of intensive reading and writing for the most part by artificial light, it is worth while, even for the success

ful man of middle age, to satisfy himself by a visit to an oculist, that he is not expending profitless energy by straining his eyesight

For the interested and careful observer the external ear is a very tell tale organ. The lobe is peculiar to the *genus homo* none of the lower animals not even the anthropoids, are possessed of it, its absence is therefore regarded as a stigma of degeneration which is occasionally very informative. Another stigma of degeneration is what is known as Darwin's tubercle that is the little elevated point not infrequently seen near the upper part of the margin of the ear. It represents the tip of the pointed ear found in many of the lower animals. Artists never fail to confer it upon Mephistopholes, satyrs and gnomes. Ears which are very large or very small, ears which stand out at right angles from the head or are plastered against the cranium, ears which are not involuted and those which are situated either too high or too low in relation to the eye, are all degenerate in some degree. And by the word degenerate in this sense I mean a state of matters which falls unduly short of the optimum in the physiological make-up of the individual, so that a person with such stigmata as I have mentioned may be regarded as more prone to succumb to disease both microbic and metabolic than he ought to be, and more likely to wear out his organs by legitimate use than his more highly developed brother. With such people the years advance by long strides, and it is well that we should bear this in mind in endeavouring to gauge the length

of time which a particular person may be expected to live. These and other stigmata of degeneration have this importance in the present connection, man being much longer lived than any of his immediate ancestors in the evolutionary tree, any signs which indicate that an individual reverts physically to an earlier type—say, an anthropoid—indicate that he reverts vitally as well as structurally, so that the expectation of life in the case of an individual who shows signs of physical degeneration is less than it is in the case of the whole some normal. He may, for example, be afflicted with what Osler called *bad tubing*, that is, arteries which for some wholly unaccountable reason wear out prematurely, causing renal disease or apoplexy.

In any minute inquisition into a man's prospect of longevity we are rightly regardful of his family history, and I suggest that it is important for us to make such investigations as lie open to us for ascertaining any points in his racial history which may give pause to a temptation to base our estimate of the future solely upon a hearty and robustious present. For this reason a man decorated, say, with supernumerary nipples should from that fact alone be regarded as an under average life.

But to return for a moment to the ear, the most important practical everyday point concerning it is its colour. This should be the same as the rest of the face. It is very common to find it deeply congested, the most obvious reason for which, and perhaps the commonest, is a tight high collar, but it is quite common

even when no such mechanical cause is operative. In women, for example, the congested ear is exceedingly common, which is one of the reasons why so few of *them leave their ears uncovered, even when deaf*; another reason being that the ears are liable to become deeply congested at the menstrual period. In men the cause of the congestion is a toxæmia, usually of intestinal origin, and the treatment a course of castor oil.

If, now, we transfer our gaze from the face of our fat Adonis of forty five to the only other uncovered portion of his person, namely his hands, we may gain some useful information. To begin with, if it is the typical mediæval hand with long tapering fingers, it suggests the unreliability often coupled with the charm and brilliancy of the artist, or it may be the small almost childish hand of a hypopituitarism dating from the adolescent period, which suggests that though under-sexed, the individual is possessed of more than the average degree of brain power of a certain kind. Or the hand may be the 'type en long' of a tendency to giantism, or the 'type en large' of acromegaly, which *Cushing described*. The *spade hand of myxœdema* is now a rarity because a pronounced degree of this disease is seldom seen. Even in a seemingly normal hand we should satisfy ourselves that the half moons on the nails are properly developed, for if they are not the fact reveals a present pituitary deficiency which may underlie some of the characteristics, such as the obesity, which we have already considered. What, as

schoolboys, we used to call double jointedness—that is, an over extensibility of the joints, especially of the hand and elbow—is a definite sign of endocrine imbalance, usually of thyroid insufficiency

But the most outstanding feature about our fat friend's hands is the fact that the thumb and fore finger of one or both of them are stained with tobacco. Now, in the matter of tobacco let us understand two points quite clearly. The first is that, as smoked by all and sundry in most civilized countries, it is a definite narcotic poison. So much is obvious, for, if it were not, none of us would use it. The second point is that, as Sir Humphry Rolleston insists, tobacco differs from ordinary poisons in the fact that it does not, like morphia, cocaine and others, establish a tolerance for itself. It would seem, on the contrary, that each one of us is born with a certain capacity for tolerating tobacco, and that we gradually exhaust that tolerance. The fact that this takes place gradually renders it difficult for the victim to believe that the moderate amount of tobacco which he consumes could possibly be the cause of his symptoms. Now, what are the symptoms? Setting aside the irritation of the upper air passages already noticed, the two troubles which may unhesitatingly be attributed to undue smoking are insomnia and indigestion. To these relatively harmless consequences may safely be added a third, also harmless, namely neuralgia. When this afflicts the sciatic, for which it seems to have a predilection, the results may be painful and crippling, and it

is generally difficult to persuade the sufferer that the relinquishing of what he regards as a harmless indulgence is going to deliver him from his enemy.

Now, some of us wear out our tobacco tolerance much more rapidly than others. One man may go on smoking with real impunity up to sixty years of age, while another is 'through' with his tolerance (as the Americans say) by forty five or fifty. The symptoms of intolerance, almost imperceptible at first, may show themselves in any organ or system. The smoker's irritating laryngeal cough, leading gradually to a chronic bronchitis, is perhaps the most familiar phenomenon, in the domain of the special senses we must realize that tobacco amblyopia is only the superlative of which there are several positive and comparative degrees, less dramatical but not less severely deleterious. Deafness in a person of over fifty years is always aggravated by, even if it be not caused by, the use of tobacco even in moderation. Digestive and nervous troubles have already been mentioned, but tobacco reserves for the vascular system its most intimate malicious touch. The earliest sign in this system usually amounts to no more than a slight and transient giddiness accompanied by what may be described as an occasional consciousness of the fact that one possesses such an organ as a heart. This consciousness then becomes gradually more frequent and more obtrusive, and is accompanied by extra systoles and flutterings. These are bravely born and attributed to indigestion or

worry, until one day there occurs a real anginoid attack, The patient may be regarded as peculiarly fortunate if even this alarming ebullition is attributed to its real cause. For when a search for causes into any matter is afoot tobacco has a way of getting behind the door so that people forget it, or, remembering it, dismiss it as altogether unimportant.

Now, if we are forced to admit that in general tobacco smoking is a harmless indulgence we ought in my view to be ready with certain saving clauses and clean cut exceptions. And the first of these should be a rule that no one should smoke after fifty five years of age. *Most people arrive at that milestone with their tolerance for tobacco completely worn out so that persistence in the habit is bound to cause symptoms.* These symptoms vary very widely in their nature but the nervous system seldom escapes, the respiratory system very rarely, and the vascular, never. And let me once more insist upon the sly and stealthy incidence of these symptoms and the consequent serious danger that their true cause may escape recognition. In a man past middle age it is never safe to dismiss a story of dyspepsia, of insomnia, of neuragha, of vertigo, and most important of all of substernal pain radiating down the left arm without making minute inquiry into the question of the patient's habits with regard to tobacco. The position admittedly a difficult one is complicated by the fact that there are dozens of people who ought never to be allowed to smoke, people, that is, who are born with little or no tolerance for tobacco,

and who are sublimely ignorant of the fact. A very large number of chronic dyspeptics and people who describe themselves as martyrs to insomnia, are people who smoke, often heavily, although they have been born with practically no tolerance for the weed. Now, it would be very useful for us if we could learn to recognize such people and possibly to grade them in such a way as to enable us to say to A, 'If you must smoke (and no one must), then so arrange matters that you relinquish the habit absolutely on your fortieth birthday,' and to B, 'You may go on till fifty.' But such a refinement of detail is obviously a long way off. The little we can do at present is confined to such generalities as saying that each one must work out his own salvation. That, no doubt, is true, but if he has to do it unaided it will be at the cost of much suffering, from which a timely word might protect him. Now, can we contribute anything to his salvation? Well I think we can.

To begin with, I think it perfectly safe to say that degenerates of all sorts ought not to smoke. I have already mentioned some of the stigmata of degeneration, and I am of opinion that people who display these stigmata ought not to be allowed further to handicap themselves by the daily absorption of a poison. But in addition to those which I have already mentioned, there are others who ought in my view to be prevented from smoking. There are, for example, the very tall people—those, I mean, who are over 6 ft 5 in. The amount of vital energy which such people have ex-

pended upon the development of their somatic tissues must leave very little to spare for ordinary defensive purposes. It is well known that any real tendency to giantism renders a person very vulnerable to many complaints, especially of the respiratory system, and it is recognized that all true giants invariably die of phthisis at an early age. A very tall person thus needs to husband his resources, and he ought not to be allowed still further to weaken his defences by a wholly unnecessary poison.

I don't know whether the experts would admit that people who squint, people who stammer, and those who are definitely left handed can properly be described as degenerate, but I am going to include them in my index expurgatorius. Whatever may be the cause of their peculiarities, it is quite certain that the peculiarities are very heavy handicaps in the struggle for existence, and any thoughtful person would admit that tobacco will certainly do them no good, and is highly calculated to increase their existing difficulties.

It is said that a mixture of races produces degenerates, and that such people very often have red hair even when both parents are dark. This is said to be a reversion to a very primitive type, because aboriginal man was red headed, and certain it is that in all countries and at all periods the red headed person has been regarded as a type apart. 'Ginger,' as we call him is, in a great many respects, not as other men are. He is invariably possessed of a very irritable nervous system which reacts promptly and violently to every

form of stimulus. It is not therefore surprising to find that tobacco affects him more decidedly than it does those of a different colouring, and that he tends very early to show signs of intolerance. 'Ginger' is one of those who ought never to be allowed to smoke.

And there are others. I have already mentioned supernumerary nipples, or polymastia. With regard to men thus decorated it is accepted that in order to keep in reasonably good health they must avoid meat foods. In point of fact such people revert to their herbivorous ancestors, and meat is to them a definite poison. Can we doubt that tobacco is an even worse poison? A degenerative sign which even when fairly pronounced often escapes notice is facial asymmetry. It is known to be frequent in epileptics, but it is by no means uncommon in those who pass as normal. I have never found such people to be really normal, and I would certainly place them amongst those from whom tobacco should be withheld. It will be observed that the great majority of old people give up smoking of their own accord. They have learned wisdom by experience.

When man arrives at maturity he attains to a physical state which he ought to be able to maintain for a very much longer period than is now considered likely. Physiological maturity is not a function of time, and senility is not a question of years. Georgias of Leontini, at the age of one hundred and seven years—still active, diligent, and efficient—was asked why he consented to go on living. He replied 'I have no fault to find with old age.' Cicero's comment on

this was 'That was a noble answer, and worthy of a scholar, for fools impute their own frailties and guilt to old age'

Nevertheless, it must be admitted that length of days without physical and mental efficiency is the reverse of desirable. There is no family so deserving of commiseration as that which includes a member who is a senile and peevish autocrat, or, worse still, one who is a senile and physically healthy imbecile. Old age with mind and body unimpaired is admirable, it carries with it lovable qualities of heart and brain which are seldom otherwise encountered, but old age as it is too often seen is unlovely and unlovable. In the vast majority of cases it is true, as Cicero puts it, that *senectus ipsa morbus est*. When efficiency becomes seriously impaired, continued existence is an incurable disease, by no one, in no wise, to be coveted.

Some of those who recall Solomon's admonition, 'Remember now thy Creator in the days of thy youth, while the evil days come not, nor the years draw nigh, when thou shalt say, I have no pleasure in them,' seem to imagine that, by taking thought, they may indefinitely postpone the evil days, and their method of taking thought not infrequently leads them into very fantastic precautions. Forgetful or, more probably, ignorant of Plato's profound saying that 'attention to health is the greatest hindrance to life,' they become converts to every new hygienic gospel, and sit willingly at the feet of any

prophet, dietetic or psychic, who will peddle them an earthly Paradise from an ass's pannier

With the wit and truth which scintillate in so many of their sayings, the French have it that 'Pour vivre longtemps il faut une bonne digestion et un mauvais cœur' Matthew Arnold, in a characteristically grim couplet, remarks that the only thing which old age has in common with youth is discontent In another poem, the same staid cynic of the seventies says that when old we 'feel but half, and feebly, what we feel, Deep in our hidden heart Festers the dull remembrance of a change, But no emotion—none'

The arch cynic Swift goes gloatingly into greater detail He portrays for us the Struldbrugs whom Gulliver found on the island of Luggnagg These creatures never died Gulliver at first envied them, but he ended by hating them 'They were not only opinionative,' he says, 'peevish, covetous, morose, vain and talkative, but incapable of friendship and dead to all natural affections Envy and impotent desires were their prevailing passions'

In spite of Cicero's saying, old age is not, of course, physiologically, a disease, any more than infancy is a disease It is a stage in the evolution of the individual It may come early or late, but it comes Some people—e.g., the victims of pogena—become senile at puberty, others have already run their course at forty five, some retain their manhood until the sixties, but it is rare to find anyone over seventy

who does not bear quite unmistakable marks of physical decline

As infancy is the time of tumultuous, erratic, disorderly reaction, and adult life the period of deliberate, generalized, orderly reaction, so is old age the period of slow, blunted, and apparently dissociated reaction. In infancy one organ which is hurt cries loudly to the others, all of which join lustily in the discordant chorus. As the years advance the response becomes less and less, until in old age each organ keeps its grievances to itself. This is puzzling to those whose practice has been mainly among children and adults, for the general reaction and concomitant symptoms upon which they are accustomed to rely for confirmatory evidence are usually wanting. The pulse-temperature ratio for example, is very different to that which is customary in febrile states in adult life, for the pulse rate remains low though the temperature be high. It is the same with the pulse-respiration ratio, for in old age dyspnoea is easily provoked by slight causes, whereas heart-hurry seldom occurs. As each organ is thus to a large extent autonomous, there is no massing of the general powers of resistance of the whole organism, with the result that acute affections in old age show a great tendency to become chronic.

In dealing with elderly people this cardinal fact of their blunted reaction and lengthened period of recoil from stimuli must never be lost sight of. It

is the key to much which would otherwise seem paradoxical, it explains the otherwise inexplicable Pain, for example, is never so acute in the aged as it is in the adult or the young. Even the pains of hepatic or nephritic colic which in the adult are amongst the most agonizing which he can endure are so much reduced in old age as to become almost imperceptible and the older the patient, the less is the pain. The question of temperature affords another example. When the thermometer is placed in the mouth or the axilla it may fail to register any febrile movement although the real temperature as taken in the rectum may be as high as 101° F. The reaction to mental and moral stimuli is notoriously enfeebled in old people. Even when they do not exhibit the vices of Struldbrugs they tend to become self centred and heedless of matters which do not concern their physical condition or they tend to lose the control of the higher centres and display unreasoning and impulsive irritability. The expression second childhood is by no means a pointless gibe.

The general hygiene of old age differs in many material respects from that which is applicable even to late adult life. The aged are, for example, peculiarly liable to external parasites both animal and vegetable. Pediculi of all kinds seem to have an instinctive knowledge of the easy prey which old people present, and this coupled with the relative insensitiveness to pain in the victim is liable to give rise to results against which special precautions are

necessary. Among vegetable parasites *Mycosporon furfur* is extremely common. It is not infrequently mistaken for the pigmentation which is so common in the senile skin, possibly as the result of suprarenal insufficiency.

The maladies which afflict the decadent period of life are none of them peculiar to that period. The same diseases and affections are met with in the adult, the adolescent, and even in the child. It is nevertheless true that certain diseases are more common in advancing years than they are in the earlier periods, and that the diagnosis of these diseases presents difficulties and their treatment demands modifications, due solely to the age of the patient. Among the best illustrations of these peculiarities are those connected with the gastrointestinal tract. The dyspepsias of old people very seldom conform to the types with which all are familiar in the adult and the child. Not only has the physician to bear in mind the spectre of carcinoma, but he has to remind himself that gastric and duodenal ulcers are by no means uncommon, and that they give rise to little or no pain and very few general symptoms. Chronic constipation is so frequent in old age as to amount almost to a normal accompaniment of senescence, and even when very obstinate it sometimes seems to do no harm whatever. Elderly patients have often been known to protest that they feel much better when they are constipated.

In the presence of gastro intestinal troubles in the aged the possible responsibility of a hernia should never be lost sight of. Herniæ are almost as common in old people as constipation itself. Cardio vascular affections bear a character of their own and attain to a special significance with advancing years. These in themselves would constitute a long chapter. Deviations from the normal in the domain of the central nervous system are in many respects very dissimilar from those which occur in the adult. To the rule of relative analgesia which has already been referred to as characteristic of senectitude there are two notable exceptions. One is that true neuritis in old age is liable to be very protracted and severe, as for example the pain which follows herpes zoster. The other is that pruritus, both general and local, is certainly more intense, more obstinate, and more wearing in the old than it is in the young.

There has been much discussion concerning the causes which determine that one man should be senile at fifty and another similarly circumstanced should still be young at seventy. It is said to be a question of their respective constitutions. That is doubtless true, but it is necessary that we should understand what we mean by a constitution. The constitution of any given person depends upon the accuracy of his metabolic changes. By accuracy I mean the proper co-ordination of his intake, his assimilation, and his output. If at the outset he is well endowed with co-ordinative power, if, as the

French say, he is originally well equilibrated, then his constitution is good. If, however, there be a piece which does not quite fit the dovetail, whether it be too large or too small, a thought too narrow, or a trace too wide, the other members are strained, and though in favouring conditions the machine may appear to work smoothly enough, the weakness becomes painfully apparent in times of stress.

Of these three, intake, assimilation and output, in the early years when the constitution is being stereotyped, as it were, the assimilation is by far the most important. In later life the importance of this element wanes, and it is the output which becomes paramount. Adequate anabolism in infancy and childhood, energetic katabolism in adult life and advancing years—these are the bulwarks of the constitution.

Time was, and that not so very long ago, when our knowledge of matters metabolic was very rudimentary. Tissue change was regarded partly as a nervous phenomenon, but mainly as a dietetic drama, in which a harmless enough creature called uric acid very successfully posed as the villain. To-day we know more, but there is much knowledge still to seek. We know that metabolism is under the direct control of the internal secretory glands. We know that these glands preside over growth and development in infancy and childhood, that they are essential to mental, physical, and reproductive

efficiency in adult life, and that they are responsible for the maintenance of katabolic balance in the period of decline. It is therefore no exaggeration to define the constitution of an individual as the resultant of his internal secretions.

Lorand has sustained at some length and with considerable ability the thesis originally put forward by Leopold Levi to the effect that the causes which give rise to the phenomena of senescence are due to the decline in the activities of the thyroid gland. It is not of course suggested that old age itself is due to a failure of the thyroid, but it is contended that many of the disagreeable and disabling concomitants of senescence can be directly traced to this cause. Leopold Levi has compared some of these concomitants with the symptoms of myxœdema, and points out that they have much in common. The asthenic state of the skin and its appendages, the subnormal temperature, both subjective and objective, the muscular weakness, the failure of memory and the difficulty of mental concentration, the affections of the gums and the disorganization of the teeth, the rheumatic pains, the constipation, and the tendency to vascular degeneration, are all of them salient features both of myxœdema and senility, and present a series of similarities which can scarcely be dismissed as fortuitous. This is certainly an unduly restricted view of the matter, for it is quite certain that in common with the thyroid, all the endocrine glands, notably the gonads, the suprarenals, the pituitary,

and the pancreas, undergo anatomical changes which seriously impair their functional activities. The phenomena of old age are therefore due to a general lowering of endocrine activity and not to the failure of one gland only, important though that one gland admittedly is. There can, for example, be no doubt that the testicular decline is an important factor in the production of some of these phenomena, nor that the suprarenal and chromaffine failure accounts for others, and it is more than probable that some will ultimately be traceable to the pituitary and others to the pancreas. The practical value of this view of the question is to be found in the light which it throws not so much on old age itself, as on its premature onset and on many of its least bearable accompaniments. It holds a promise that the study of the ductless glands in health and disease will enable us to afford a measure of relief in the treatment of senile conditions which has hitherto been impossible.

The personal hygiene proper to the senescent does not differ very materially from that which should be observed in the middle years. It might be expressed as 'Fresh air, meagre fare, freedom from care'. Upon the first, it is unnecessary theoretically to insist, but practically a great deal of insistence is often necessary. The low body temperature and *subjective chilliness* which characterize the aged is all too often made the excuse for stuffy parlours and sealed bedroom windows. The inevitable consequence is deficient oxygenation with its resultant

decline in metabolic activity It is said that Queen Victoria owed her length of days and her maintained mental vigour to her careful regard for Sir William Jenner's repeated injunctions about fresh air and the open window

In the matter of 'meagre fare,' medical insistence is even more necessary Unfortunately, however it is seldom forthcoming The ordinary layman and even more the ordinary laywoman, is convinced with a conviction which nothing can shake, that the feebleness of the elderly requires correction by a liberal dietary, and the ordinary practitioner either from weariness or tactfulness declines to engage in an unequal combat on this prickly question When he is courageous enough, he will not fail to point out that a feeble body means feeble digestive organs and that enfeebled digestive organs cannot in the nature of things be expected to deal with a liberal intake Let him repeat, even *ad nauseam*, that man lives by what he digests, and not by what he eats 'Meagre' in this connection applies as much to quality as to quantity In place of the strong meats which his womankind unceasingly thrust upon him the elderly man should be encouraged to eat vegetables and fruits, especially such as are uncooked It is a popular, and as yet an unexploded, fallacy which teaches that uncooked foods are difficult of digestion The exact opposite is the truth The vitamins, though present in abundance in most uncooked

foods, are nevertheless relatively absent from foods which have been subjected to any cooking process. Those with feeble digestions should be encouraged to take such foods as are known to contain them in relatively large quantities. Such are dairy produce—milk, cream, butter, eggs, cheese, uncooked vegetables—lettuce, tomatoes, celery endive, watercress cucumber, and the like, and fresh fruit of all kinds. For the rest, cooked vegetables are better than meat poultry, and fish, green vegetables are better than root vegetables. The best among the green vegetables is spinach—*le balai des intestins* as the French call it. A dietary regulated on these principles will supply a large sufficiency of nourishment without putting any undue strain upon the endocrine system. Talleyrand described man as '*une intelligence contrariée par des organes*'. The organs to which he referred, though he did not know it, were the organs of internal secretion. Their contrariety arises from their exhaustion by excess of unsuitable food.

Freedom from care is a blessed state to which we all aspire, but it is by no means certain that it is good for us when we get it. Freedom from petty worries is desirable at all periods of life, because energy expended upon unessentials, such as trivial domestic troubles, leaves so much less for application to essentials, but it is not desirable that anyone at any period should be wholly free from such cares as are necessarily incidental to the serious business of his life. No good craftsman finds his work a pas

time, and it is good for a man, mentally, morally, and physically, to have work to do which he feels under an obligation to do well. This is true at every stage of life, but it is more especially true as the years advance. There is an old saying that it is better to wear out than to rust out, and certainly the best way to avoid rusting out is to work. That a busy and even a harassing life is quite compatible with unimpaired efficiency and length of days is evident from the examples which could be furnished from public men in all countries, and there is little doubt that the maintenance of efficiency into the octogenarian period in these cases has been due to the continued vigorous exercise of the mental faculties.

CHAPTER IX

INSANITY

THE subject of insanity, though one which cannot properly be included in any category of minor maladies is emphatically one of those to the understanding of which the ordinary text book contributes but little. Some of its practical aspects seem, therefore to come within the scope of this volume

The most important thing to realize in connection with insanity is that it is a symptom and not a disease. We have to divest our minds of the idea that there is some special obscurity in connection with it an obscurity of a different character from that which still surrounds such conditions as cancer, whose ætiology is still unfortunately hidden from us. Mental aberration is in many cases as much a physical condition as leukæmia or pernicious anæmia, inasmuch as it is due to some alteration either of the cortical cells themselves, or of the blood which nourishes them. Our ignorance of the subject and *its difficulties, together with the fact that the symptomatology is almost purely mental* have combined to surround this department of clinical medicine

with an atmosphere of mystery from which it is to the interest of everyone that it should be emancipated. The first step towards that emancipation is the recognition of the fact, which is no longer in doubt, that the great majority of cases of acquired mental alienation are due primarily to physical causes, the discovery of, and differentiation between which are necessary to their ultimate removal.

This atmosphere of obscurity has had for its result the almost complete neglect of the question by him who is in a sense the most favourably placed for studying it in its earlier, and therefore its most remediable, stages—namely, the family doctor. It is no disparagement to the excellent work done by alienists to say that inasmuch as they seldom see the cases until the malady is pronounced, they are less favourably situated than others for observing and counteracting the early symptoms. It is no part of my purpose to enter into the diagnosis and treatment of mental diseases, rather do I wish to emphasize the position that, ignorance of the accepted classifications is no barrier to the appreciation of the fact that a departure from the normal is present in an individual case, nor need it deter the observer from undertaking an intelligent clinical investigation into the physical causes by which this departure has conceivably been provoked.

Insanity is still too often regarded, as in former times all disease was regarded, as a visitation of Providence, in the presence of which medical inter-

ference is not only impotent, but impious. The obscurities of heredity, degeneracy, and other difficult social problems, rise up to lend support to this attitude. But while the power of such influences is neither to be gainsaid nor minimized it seems necessary to insist that they are for the most part merely predisposing causes which might be successfully kept inoperative if the laws of normal development and healthy animal existence were more frequently insisted upon for purposes both prophylactic and therapeutic. That a person who shows signs of insanity has had an epileptic father and an alcoholic grandfather is not a sufficient reason for abandoning him to the fate with which he is threatened. It is, however a very good reason for inquiring into his habits and mode of life for subjecting him to a minute clinical examination—for investigating everything in fact, which may reveal any disturbance which, though slight in itself may nevertheless, be sufficiently powerful in the predisposed reflexly to upset the balance of higher centres.

In other words, we should learn to look upon insanity not as the result of causes which are necessarily subtle, remote, and irremediable, but as a state of the nerve cells to the production of which many causes have contributed. Some of these, the exciting, may be, and often are, recent and remediable and the discovery and removal of these (a matter which is definitely within the sphere of the physician as distinct from the alienist) may well make all the difference between a mere transient

melancholia and a state of matters which urgently demands institutional treatment.

In conducting a clinical examination it is essential to observe a definite routine, and to make careful notes of the findings as the examination proceeds. Necessary as this always is, from the point of view of overlooking nothing, where there is any question as to insanity, it acquires, as will appear later, a very special importance because of the fulness and accuracy in the matter of detail which are necessary to the filling in of a lunacy certificate.

The system which should first engage the attention of the examiner is of course the nervous system, and here to prevent oversights, it is well to adopt a regional method, beginning with the head. After careful inquiries as to memory (especially for recent events), sleep, and pain search should be made for physical signs. Having observed and noted the presence or absence of general facial asymmetry, the eyes should engage the most earnest attention. Both squint and ptosis are important and in slight degrees, easily overlooked points. The size and equality of the pupils, and their reaction to light and accommodation, must be carefully tested, in each eye separately.

Nystagmus even when present only on extreme lateral deviation, is very significant, and the search for it should on no account be omitted.

The detection of refractive errors, especially those which are moderate or slight in degree, is of paramount

importance (*vide* Chapter IV), and if there should be any doubt whatever on this point, the question should be referred to a specialist. There is no more fruitful source of grave disturbance of the higher centres than those slight ocular defects which while not impairing the visual power, nevertheless impose a constant strain upon the ciliary muscle, and lead to exhaustion of the nervous system.

The fundus on both sides should be examined for commencing atrophy of the disc, for hæmorrhages, or for any other abnormality calculated to throw light upon the patient's condition.

Defects of articulation may be evoked by making the patient say difficult words, especially those involving the lips and tongue, such as 'parallelogram,' 'laryngological,' 'anæsthetical preliminary,' and sentences such as, 'The Irish artillery extinguished the conflagration.'

The state of the facial muscles is best ascertained by such directions as 'Screw up your eyes,' 'Show me your teeth,' 'Put out your tongue,' 'Blow out this light,' and while these directions are being carried out the examiner should be careful to note the existence of any tremor and should study the relative strength of the contractions on the two sides.

Before leaving the face the state of the mouth must be examined. Oral sepsis is a frequent and well recognised cause of reflex irritation so that if present in any degree, however slight, great care should be taken to detect and remove it.

In the upper limbs, the force of the grasps on the two sides should be compared. Tremor and involuntary movements are best elicited by making the patient extend both arms together, and spread out the fingers of the two hands. He should then be directed to touch the tip of his nose with each fore finger separately, the eyes being closed. This will elicit intention tremor, and ataxy. The condition of the supinator and triceps jerks should be tested.

In the lower limbs, any abnormality of gait or pose should be noted, and the muscles should be examined for wasting or rigidity. The patient should be made to stand with his heels and toes together, and close his eyes. If this, which is called Romberg's test, causes swaying or reeling, it indicates the presence of static ataxy. The knee jerks must be tested, if necessary with what is known as reinforcement—that is, by causing the patient to clasp his two hands together, and then to make an effort as if to pull them apart. Ankle clonus, if present is very important because it affords unequivocal evidence of the involvement of the pyramidal system. The same may be said of what is known as Babinsky's sign—namely, a definite extensor response of the great toe to plantar irritation.

The sensibility as to touch, pain, and temperature, should also be investigated, though it must be confessed that this is an ordeal which is apt to be a trying one where we have a stupid, inattentive, or morose person to deal with.

Such an examination of the nervous system derives its importance from the fact that it will reveal the existence of any physical sign of organic disease which may be present in that system, and as these physical signs afford very valuable confirmatory evidence of mental instability, their aid in rendering a certificate convincing cannot be overestimated. Moreover, the nature of the physical signs, when present, will enable us to place the mental symptoms in their proper category. The discovery of nystagmus and intention tremor, for example will prevent us from attributing to mere hysteria, an emotional instability which is really due to disseminate sclerosis, in the same way that a slight 'perversion of the ego' will acquire a peculiarly sinister significance if we find it associated with unequal pupils and a knee jerk which is either absent or exaggerated.

But, although I desire to emphasize the importance of deriving all possible assistance from the examination of the nervous system, my present purpose is rather to insist upon the responsibility of derelictions of duty on the part of other systems in bringing about the state of matters which we are considering. Dr Graham Crookshank¹ says 'No case of neurosis, neurasthenia, or borderland insanity should ever be treated without the most careful reference to the condition of eyes, ears, nose mouth, heart, lungs stomach, bowels and pelvic organs.' The questions of ocular and

¹ 'The Management of Early Transitory, and Ill-defined Mental Disorders' *Clinical Journal*, January 25, 1905

nasal defects have already been considered (*vide* Chapter IV) The importance of attention to the state of the mouth has been mentioned above and may be here reinforced by another quotation from Dr Crookshank 'Attention to oral hygiene is of vast importance It is not an exaggeration to say that cases of alcoholic insanity have been cured by the dentist' And not alcoholic insanity only, but other forms which are due to absorption of toxins from the mouth, and to digestive disturbances consequent upon deficient mastication

The responsibility of the intestinal tract for the manufacture and distribution of poisons which cause functional derangements in the central nervous system is now so well recognised that it scarcely needs a reference Chronic constipation vies even with syphilis and alcohol in the multiplicity of its morbid consequences and their magnitude Among these consequences mental troubles occupy the foremost place, and there can be no doubt that if patients in the early stages were adequately purged of their toxins, the number who ultimately come to certification would be considerably reduced Sir Robert Jones very properly deprecates the advice so often otiosely given by the un instructed, that patients suffering from incipient insanity should travel Certainly, aimless travel is not only useless, but dangerous but travel undertaken with a view of reaching a spa with purgative waters, such as Carlsbad or Brides les

Bains, is a very different matter. It is quite certain that an annual course of treatment at such a place constitutes the salvation of many people who would otherwise from time to time be threatened with mental instability, a fact which is worth remembering when we have a difficult patient or recalcitrant relations to deal with.

Derangements of the reproductive organs especially in women, are perhaps the most fruitful cause of those slight departures from the normal to which the name 'borderland' is applied and no pains should be spared to discover and rectify any defect which may exist. Adolescent insanities in girls often begin with constipation, anæmia and amenorrhœa.

In the cardio-vascular system the most important matter to investigate is the condition of the blood pressure (*vide* Chapter V). Slight mental troubles are very often associated with, if, indeed they are not directly caused by, an increase of the blood pressure. This factor, as being remediable in its earlier stages, is of more importance to the investigator than the state of the heart itself, more especially as cardiac troubles are so often secondary to an increase of peripheral resistance.

Finally, it should not be forgotten that delirium due to typhoid or pneumonia has not infrequently been mistaken for acute mania, a fact which emphasizes the importance of a thorough physical examination, not only in slight and borderland cases,

but also in the case of those who are demonstrably and grossly insane

There is yet another advantage of approaching every mental case as though it were one of physical derangement and that is the effect produced upon the patient. A medical man is frequently asked to adopt 'a ruse in order to see the patient—by announcing himself as the greengrocer calling for orders the man who winds the clocks, or something equally absurd. To this he should never consent. He should, on the contrary, insist upon appearing in his true capacity and lose no time in explaining to the patient that the object of his visit is to examine into the latter's health. If, now, the method of examination is physical, the patient's confidence is at once secured, and he is far less liable to suspect that the object of the visit is 'to send him to an asylum than if some method is adopted with which he is unfamiliar. Nothing in these cases is ever gained by deception.

If physical examination succeeds in eliciting some recognised cause of insanity, the removal of which affords a reasonable hope of rapid improvement, then the propriety of undertaking the treatment at home should be duly considered. The question of home *versus* institutional treatment is a difficult one, which can only be satisfactorily decided in view of all the circumstances of a particular case. On the one hand there is the very natural dislike of the stigma attaching to asylum treatment, and the fear of the

consequences which such a stigma may entail even upon unborn generations. Moreover, institutional treatment is expensive, and expense may be a very serious consideration, especially where the patient happens to be the bread-winner. On the other hand, it is a sad and significant fact that the dislike of an asylum, natural, and in a sense laudable, though it be, is responsible for many cases reaching the incurable stage which might have been cured had they been subjected to expert treatment in the first instance. The treatment of insanity is a very special matter, and general practitioners would be well advised if they refused to undertake it unaided, unless they felt very sure that the particular case was well within their competence. If home treatment is strongly desired by the relatives of the patient, the best course to pursue is to refer the whole question to an experienced alienist, under whose advice the practitioner may carry out the home treatment, should this be decided upon. Unless he has had special experience, the family doctor should make it a rule to refer the question of the treatment of all cases of insanity to an expert in the same way and for the same excellent reason that he habitually refers all cases requiring abdominal section to a practising surgeon. The cases suitable for home treatment are given by Sir Robert Jones as follows: 'Forms of insanity referred to malnutrition such as those caused by excessive lactation, or the conditions accompanying the puerperal state, transient toxæmic states, such as

those due to drink or drugs and the temporary insanities of young persons, quiet and harmless weak minded cases, and certain cases of general paralysis in the last stage, whose friends are desirous of avoiding the much felt stigma when a father or husband is said to have died in an asylum.'

When no doubt exists that a person is sufficiently insane to demand or warrant his removal from home, the proper course to pursue depends upon whether that person is a 'private patient' or a 'pauper', whether, in fact, he is sufficiently well off to contribute something towards his keep in an institution, or whether, removed from his means of livelihood, he is penniless.

In the case of a 'pauper, notice of the fact and circumstances should at once be given to two functionaries—namely, the parish doctor and the relieving-officer. No harm is done by notifying yet a third—namely, the head of the police in the immediate district. As soon as these officials have received proper intimation the responsibility of the ordinary medical man is at an end, except that he may be called upon by the magistrate to furnish particulars. These functionaries are bound by Act of Parliament to take the necessary steps within three days of receiving the notice.

In the case of a private patient there are two methods of procedure (1) An urgency order, and (2) an ordinary petition, with statement, two medical certificates and a justice's order.

1. Urgency orders should only be employed in cases which are in reality urgent. They do not obviate the necessity for the ordinary certification, they merely postpone it for a few days, and they cause a great deal of extra trouble to all concerned¹. An urgency order consists of—(a) an order signed by one person, who must be an adult friend, preferably a relative of the patient, and (b) a medical certificate signed by a qualified practitioner, preferably the usual medical attendant of the patient. These two—the relative and the doctor—must have seen the patient within two days of the time that each signs his respective document, and they must not be related to one another. The order holds good for seven days, within which period the ordinary petition, with two medical certificates and a justice's order, must be provided. The medical man who signs the urgency certificate may also sign one of the subsequent medical certificates, and he may frame the latter on the same interview, and even couch it in the same language as the urgency certificate, provided that the ordinary certificate is furnished within seven days of the examination of the patient. The manager of an institution, if he has room, will admit a patient on an urgency order forthwith.

Forms for urgency orders and ordinary certificates ought always to be in the desk of every medical practitioner. They may be obtained from Messrs

¹ 'Insanity in Everyday Practice' E. G. Younger (Baillière, Tindall and Cox).

Shaw and Sons, Fetter Lane E C, or from the authorities of any licensed house mental hospital or asylum.

2 *In the case of a private patient the procedure although it may at first sight seem complicated, is in reality very simple* When it is decided that institutional treatment is necessary, the superintendent of the selected institution should be communicated with without delay If the practitioner has not any certificate forms in his possession the said superintendent will supply all that may be necessary The nearest relative (preferably the father mother husband, or wife of the patient) is supplied with certain forms, which must be duly signed, and it is in most cases desirable that the medical man should assist at the signing

Two medical certificates are necessary, one of which ought to be signed by the medical practitioner in ordinary attendance upon the case The other may be signed by any medical man, provided he is neither related to the patient nor in any way connected with the institution to which the patient is to be sent

Inasmuch as the law demands that one certifier shall be the usual medical attendant, and requires reasons to be given if this be not the case, it is obvious that anybody may be called upon to fill in a lunacy certificate at any time There was at one period considerable danger in certifying an insane patient Some of these people are very litigious, and are apt to bring actions against all those concerned in their detention if they should ever be set at liberty

There is now no fear of any difficulty arising, if only the certifier will take ordinary care. The Act of 1890 protects him fully, even abundantly, if he will realize what his responsibilities are in connection with the making out and the signing of the certificate. First, then, the certificate should be drawn up with the feeling that it is a document upon which the certifier may conceivably, at some distant date, be cross examined in open court. Although as has just been pointed out there is no serious danger of this, yet it is always well to be provided against every possibility, and if every certificate were drawn up with the spectre of a cross examining counsel at the writer's elbow, it is very certain that not a single case would ever come into court.

It is not sufficiently appreciated that if any proceedings are taken against a person for signing a lunacy certificate, such proceedings may be stayed upon summary application to the High Court, or to a judge thereof, if the court or judge is satisfied that there is no reasonable ground for alleging want of good faith or reasonable care (Lunacy Act, 1890, Section 330, subsection).

This subsection represents the medical practitioner's Magna Charta in matters relating to the certification of the insane. Section 330 protects him from losing an action if he has acted in good faith and with reasonable care, but it does not prevent proceedings being instituted. The subsection goes further, and provides means for stopping an action if there is no

ground for alleging want of good faith and reasonable care

Now, in order successfully to invoke the aid of this subsection, the certificate must be so framed as to impress the judge that extreme care has been taken in every detail. Medical men are in the habit of inditing a lunacy certificate much in the same spirit as that in which they indite a certificate for a club, stating the inability of one of its members to follow his ordinary employment. It should be remembered, however, that there is an essential difference between a lunacy certificate and any other medical certificate. This difference resides in the fact that whereas in the latter the doctor's opinion as an expert is accepted, in the lunacy certificate it is not. It suffices for a qualified man to write, 'In my opinion this person is suffering from pneumonia,' but it does not suffice for him to write, 'In my opinion this person is suffering from insanity.' The club authorities unhesitatingly accept the one, the Lunacy Commissioners peremptorily reject the other. Successfully to frame a lunacy certificate it is necessary to include facts—not deductions, but facts—which will carry conviction of the patient's insanity to a person, or a set of persons, who have never seen the patient.

Extreme care and due elaboration of detail are thus essential, not only to the validity of the certificate, but also to that immunity from vexatious legal proceedings which the Act of 1890 seeks to confer on the conscientious certifier. For the certificate must not

only convince the authorities of the fact that the patient is insane, but it must also be capable of convincing a judge of the High Court that so much particularity has been exercised in its framing, that there is no ground whatever for alleging 'want of reasonable care'

The examination of a supposed lunatic should therefore be approached with a grave sense of responsibility, and the first thing to remember is that notes should be carefully taken at the time of the examination, and as carefully preserved thereafter. This is a precaution which should never under any circumstances, be omitted. It is always well to seek an interview with one or more responsible members of the patient's household or family before seeing the patient, in order that some idea may be gleaned as to the form of insanity which may be present. The full names and addresses of such persons should be carefully noted, together with their relationship or nature of connection with the patient. Facts—not beliefs or opinions—which are communicated by them are not absolutely necessary to the due execution of a certificate but they materially strengthen the document, and should therefore be studiously elicited, carefully sifted and accurately recorded.

The interview with the patient should be approached in much the same spirit as the student approaches the clinical case given him for report at his final examination. Nothing should be omitted which can be

elicited Age, occupation, family history, past illnesses and attacks, should be accurately taken down in writing, and every abnormality which a thorough physical examination has brought to light should be recorded, whether such an abnormality may seem to the examiner to have an immediate bearing upon the case or not. It is infinitely better to make the report too full than to leave it too meagre.

When the time comes for drafting the certificate the great point to be borne in mind is that it is facts which are wanted, and not conclusions, evidence and not a verdict. The conclusion or verdict is implied—namely, that the person is insane, but the facts the evidence upon which the conclusion or verdict is reached, must be set forth clearly and in detail. It is well to avoid the use of technical terms, such as 'delusion' 'illusion,' and 'hallucination' because one, at any rate, of the people whom the certificate is intended to convince may have a very hazy idea as to the meaning of such terms. Attention to the ordinary rules of syntax with clearness and accuracy of statement, being essential, it is advisable to employ the present tense of the indicative mood, as ambiguity is then less liable to creep in. Thus the certifier should begin his sentence with 'the patient states this or he does' that, instead of, as is too often done using the present participle—*e g.* 'going into the street in her nightgown' The completed certificate should be a reasoned, orderly, coherent document, bearing on its face the fact that it is the work of an

educated man who has brought to its composition the desire succinctly to convey positive information to responsible people who have no other means of forming a conclusion upon a matter of the highest importance

It is scarcely necessary to add that, after efficiency, brevity is one of the most valued attributes of a lunacy certificate. These documents have not only to be perused by several people, but they have usually to be copied many times over. Nevertheless, desirable as it is, brevity should not be attained at the expense of adequacy, nor should it be sought for outside the rules of ordinary syntax

Before a lunacy certificate is sent in the certifier should read it critically, and ask himself two questions concerning it. The first is 'Will this convince a person who has never seen the patient that the latter is insane?' The second is 'Will this convince a judge of the High Court that I have used every possible care both in examining the patient and in drawing up the certificate?' If it is possible for a negative reply to be given to either of these questions then the document must be redrafted, even though this should entail a second interview with the patient. It is only by constituting himself his own severest critic that the certifier can hope to satisfy others.

The two medical men who certify a patient to be insane must act separately and apart. They must not visit the patient together and each certificate

must be made out independently of the other. When the certificates are complete, they, together with the petition and statement, must be ratified by a justice's order. The justice may be a County Court judge, a stipendiary magistrate, or a magistrate *specially appointed*. The signature of an ordinary justice of the peace has only temporary value, because an order so signed must, within fourteen days of its date, be approved and countersigned by a justice specially appointed. It therefore saves a great deal of trouble to obtain the signature of a specially appointed magistrate or other qualified functionary in the first instance.

Briefly to recapitulate, the procedure in the case of a private patient for whom institutional treatment has been decided upon is as follows

- 1 Communicate with the authorities of the selected institution as to the reception of the patient, and, if necessary, obtain from them the forms for petition and certificates

- 2 As soon as these forms are to hand, see that the petition and statement are duly and accurately filled in by the nearest available relative.

- 3 Arrange with another medical man (not a partner or assistant) separately to examine the patient and draw up his certificate

- 4 Examine the patient and certify.

- 5 The petition and statement, together with the two medical certificates, being complete the reception

order (the printed form for which is always supplied with the certificates) must be signed by a County Court judge, or a stipendiary magistrate, or a justice of the peace specially appointed. [This official may or may not wish to see the patient before signing the order.]

6. The necessary documents being thus complete, they are to be taken, within seven days of their completion, by the person who accompanies the patient to the institution, and handed by him to the manager, whose authority they constitute for detaining the patient. Copies of these documents are forwarded by the manager to the Commissioners in Lunacy.

CHAPTER IX

SOME DRUGS, AND THEIR USES

By IVO GEIKIE COBB, M.D

It is told of Sir Astley Cooper, who was not only a great surgeon but a wise man, that he was in the habit of warning his students against new remedies 'If,' he said, 'you are too fond of new remedies, two consequences will follow. The first will be that you will not cure your patients, the second, that you will soon have no patients to cure.' Much the same idea is expressed in the phrase attributed to a distinguished physician of a later period, to the effect that 'the dangerous man is he who treats symptoms with new drugs.' There is, of course, nothing inherently wicked in the use of new drugs, it may, indeed, be affirmed that if no one ever tried them, a correct estimate of their respective values would never be formed.

On the other hand, it seems to be a fact that an affection for new drugs has a tendency to lead to a neglect of those whose virtues are well established, and as a large proportion, a very large proportion, of new drugs are useless, the man who employs them helps his patients but little. Moreover, there are certain drugs which are so well established that they constitute the standards by which we measure their new competitors, and it is obvious that if we are not

thoroughly at home with our standards, no useful comparison is possible

Among the well established drugs which have stood the test of time, there are several about which there can be little dispute iodide and bromide of potassium, *digitalis* (with its various preparations), *nux vomica*, mercury, arsenic, bismuth, while calcium salts, citric acid and the citrates, and the salts of barbituric acid, deserve especial mention Among newer drugs, quinine has proved a striking success but in only one class of case Newer remedies for the treatment of intestinal stasis, digestive stimulants and sedatives intensive alkaline treatment of gastric and duodenal disturbances, ferments and gastric stimulants, have all proved their worth

Reference must also be made to the value of vaccines, serums, and protein shock therapy

IODIDE OF POTASSIUM—This is one of the most generally useful of all drugs and the aphorism 'When in doubt try iodide of potassium' is a striking tribute to its many sided therapeutic effects To explain this many sidedness is, however, no easy matter We must, I suppose, grant it a specific effect upon gum mata and some other syphilitic lesions, but no such explanation can be made to account for its activities in such widely differing conditions as emphysema, aneurism, asthma, goutiness, rheumatism, and several others of minor importance In seeking for a factor in connection with the drug which would throw some light upon the property of ubiquity, which, above all

others, it seems to possess, one is immediately struck by the fact that a large proportion of the morbid conditions in which it is successfully employed are associated with high blood pressure. This is true of those already mentioned, it is also true of chronic renal disease, of pains, especially where these are nocturnal, and of arterio sclerosis. For whatever else it is, iodide of potassium is undoubtedly a powerful reducer of blood pressure, and it is to this fact that we may probably attribute, not only its merits but also its drawbacks as a therapeutic agent. I have certainly never given it in asthenic conditions unprotected by nuxvomica, or some other drug which tends to raise blood-pressure, without causing unpleasant symptoms.

Iodide of potassium is, under certain circumstances, a great reliever of pain. Pains of all sorts, whether they be due to syphilis, goutiness, or what not, which are worse at night are almost invariably relieved and generally cured by the exhibition of this drug. It is, however, in aneurism that its great value in giving relief from suffering is most manifest. The intolerable agony from which many of those suffer who are the subjects of this condition is more quickly and more lastingly relieved by this than by any other form of medication. It is necessary to remember that in order to bring about this result the dose must be very large. It should begin at 20 grains three times daily, and may be increased cautiously to 30 grains. Sufferers from this disease generally show a remarkable tolerance for the drug.

IODINE—Iodine in one form or another has become increasingly popular of recent years. There are certain well known objections to the use of iodide of potassium. The best known is the fact that it is a depressing compound and one which is liable—in certain individuals—to give rise to iodism. It is therefore desirable to be able to administer iodine in some form other than that of potassium iodide.

In hyperthyroidism, for example, considerable benefit frequently results from the exhibition of iodine, either in the form of a Colloidal preparation or as the French tincture. It may be that this disease is associated with a *perversion* of the thyroid secretion and that there is in reality, a deficiency of the normal iodine secreted by the thyroid gland.

Lugol's solution (iodine 2 potassium iodide 3, water 40) is a method of administering potassium iodide combined with iodine. There is also the following mixture

R.	Tincture of iodine	℥i
	Glycerin of carbolic acid	℥i
	Caraway water to one drachm	ʒi

Iodine is also prescribed intravenously. Pneumonia, erysipelas, cellulitis, and rheumatism are some of the disorders in which it has been used. There are, of course, many and wide applications for this element and its compounds in disordered states. That it is useful in thyroid troubles is well recognized and the curious paradox exists that it does good both in over acting and under acting states of the gland.

Iodine has been used in vomiting—both post operative and in that due to pelvic causes. Phthisis, typhoid, and even the common cold have been known to yield to its administration. A preparation called “Alphidine,” which is believed to be an allotropic form of iodine, is now upon the market, and it is claimed that this is non toxic and non irritant. It is put up in tablets containing $\frac{1}{2}$ gr. of pure iodine.

The external uses of iodine are too well known to require description here. its wide use as an antiseptic of the skin, its employment in the form of an ointment (*petrolatum iodi* contains 2 per cent of iodine), its use on gauze for ‘plugging’ sinuses, while Mandl’s Paint, which contains iodine potassium iodide and oil of peppermint, is a comforting and antiseptic throat pigment (*vide* Sore Throat).

BROMIDE OF POTASSIUM.—My first object in referring to this valuable salt is to strike a note of warning concerning its use. It does not seem to be sufficiently known that it has a very deleterious effect upon old people. Even in the ordinary doses of 10 grains three times daily, in a person over sixty, KBr is very liable to give rise to mental confusion, and if persevered with it may cause permanent impairment of the intellectual powers. The drug produces its effects presumably by lessening the blood supply to the brain—hence its value in epilepsy—but in elderly people the lessening of this supply may mean thrombosis of some of the vessels, and consequent softening. With a drug which presents such possibilities we cannot

be too careful, and it is a good thing to make a rule not to prescribe bromides after the age of sixty unless their effects can be very carefully watched

Another fact in connection with bromides which is worth remembering is that their effect in epilepsy is said to be very much enhanced, so that smaller doses produce the desired effect, when the diet is kept free from common salt. This plan, first advocated by Richet and Toulouse in 1869, has proved very successful in the hands of many who have tried it

In nocturnal epilepsy the action of the bromides is said to be augmented by adding 5 to 10 drops of the *tincture of digitalis* to the evening dose. Bromides being very rapidly eliminated, it is unscientific to give one large dose in the twenty four hours where the attacks are not confined to the night, and even when they are, it is better to keep the patient under the *influence of the drug during the day*

The addition of 3 or 4 drops of Fowler's Solution and 2 of tincture of nux vomica (not more) will prevent any unpleasant consequences from taking the salt even over long periods of time

An enema containing 30 to 40 grains of bromide of potassium is very useful in the vomiting which occasionally follows the prolonged administration of an anæsthetic

If it is desired to mask the presence of a bromide salt, a preparation such as Sedobrol may be chosen. This is a combination of bromide of potassium with a soap basis. Bromidia is stated to contain chloral hydrate,

potassium bromide, with extracts of *cannabis indica* and of *hyoscyamus*. It is a very useful preparation.

Preference is sometimes given to the sodium or ammonium salt of bromine. It is believed by some that these are less depressing than the potassium variety. The dose is the same.

DIGITALIS—*Digitalis*—in spite of the introduction of quinidine—is still the most important drug for certain disorders of the heart and circulation.

It first came into prominence as a diuretic, and was used for certain cases of heart failure.

The modern view of *digitalis* is that its sphere of greatest usefulness is in cases of auricular fibrillation. It slows the ventricle by introducing a certain degree of heart block.

It used to be considered that high blood pressure was a contra indication to its use, but it has been shown that in ordinary doses it does not cause a rise of systolic pressure. It is believed that *digitalis* slows the heart's action *via* the vagus, prolonging diastole, and improving the coronary circulation.

It is probable that *digitalis* is often prescribed when it is not indicated. It is used wrongly—that is harmfully—whenever it is given as a matter of routine on the discovery of a valvular lesion. A well compensated lesion, even at the mitral orifice, not only requires no *digitalis*, it resents it. It resents not only *digitalis*, but every other form of meddling. It cannot be too often repeated that a murmur in itself is no indication for therapeutic intervention, and of itself affords no

legitimate excuse for serious prognosis. What we want to know about a heart is its capacity for carrying on the work of the circulation. So long as this is adequate, the noises which it may emit in the performance of its task become a matter of purely academic interest. 'Une lésion d'orifice n'est pas une maladie de cœur.'

Digitalis should not be given in any stage of arterio-sclerosis, in atheroma, in granular kidney, or in any condition, indeed, which is characterized by a slow pulse and full arteries. It is used wrongly when it is employed as a diuretic where cedema is absent for its powers as a diuretic are confined to the cases in which this condition is present. It is used wrongly when, in the later stages of heart disease, cedema being present, it is persevered with after it has become evident that no good is to result from its use. Digitalis acts upon the myocardium and on the arteries, and when, as in such cases, the muscular tissue of the heart has become largely replaced by fibrous tissue it is impossible for the drug to exercise any cardio-tonic effect, so that its sole action is that of constricting the peripheral arteries, and thereby adding to the burden of the already overtaxed central organ. It is used wrongly when it is given in aneurism, for in this condition our object is to weaken the ventricular systole, not to strengthen it, to lower the blood pressure, not to raise it. It is used wrongly when it is given in endocarditis or pericarditis, for in neither condition can it do any good, and it may easily do a great deal of harm. It is used wrongly when it is employed for the relief of palpitation, unless it is

quite certain that this symptom arises from feebleness of the heart itself, and is not caused by obstruction in the systemic periphery. The palpitations of dyspepsia, of chlorosis, of nervous affections, and of the abuse of tobacco, are all aggravated by the exhibition of the drug. It is used wrongly when by its means an attempt is made to overcome the tachycardia of Graves' disease.

It is said that digitalis should never be given in aortic regurgitation, because, by prolonging the diastole, it encourages a larger reflux into the ventricle. This view, though perfectly sound theoretically, requires some modification, not only in view of different effects of the drug according to the dose employed—a question which is considered later—but also because its employment is justifiable and necessary in aortic regurgitation *of rheumatic origin*, when disaster threatens from progressing weakness of the myocardium. In aortic regurgitation caused by aortitis and other conditions associated with high blood pressure, it is, on account of its alleged constricting effects on the peripheral vessels, seldom advisable to administer the drug.

Digitalis, like mercury, is well tolerated by children. It is exceptionally well borne by alcoholics, and in febrile conditions it may be given more boldly than under ordinary circumstances. In disordered states of the stomach it should be given with caution, because it has itself a tendency to irritate the gastric mucosa. A great deal has been written about the toxic effects of the drug and while there is no doubt as to its tendency to cumulative action, the dangers thereof are usually

much exaggerated. These dangers may be avoided without any risk of lessening the beneficial action of the remedy by suspending it every sixth day for a day or two, for the action will continue during the interval.

The exhibition of digitalis should always be preceded by a brisk purge, some writers even go so far as to say that the ground should be prepared for it by venesection. This is not necessary in the vast majority of cases, but the purgative, preferably in the form of a blue pill (5 grains), followed by a saline, should never be omitted, and it may be repeated from time to time with great advantage.

Another fact which should not be forgotten in connection with digitalis is that the full benefit of the drug is to be obtained only when the patient is in bed. In slight cases it may, and often does, act when he is moving about, but smaller doses will bring about better results, and in a shorter time, if the recumbent posture is insisted upon. Another important point to be remembered is that its action, whether it be used as a cardiac tonic or as a diuretic, is very much enhanced by a pure milk diet. Stimulating foods interfere with its action. If it is desired to use stimulants, which it often is, carbonate of ammonia is the best. Alcohol may be necessary, but it is usually better avoided.

Of recent years, digitalis has been standardized in units, and Eggleston has devised a formula by which the maximum beneficial effect in man can be determined. Without entering into details of this, but referring only to its practical application, it may be

said that a cat-unit tablet corresponds with 1 c.c. of the tincture or 0.1 grain of the leaf, and one cat-unit is required for every 10 lbs. of body weight of the patient. The object is to produce a full digitalis effect, 'As about 2 cat-units are lost by elimination, an extra two tablets are required each day the drug is exhibited'¹

One popular method of administering digitalis is by means of crystallized digitaline. This is put up in the form of granules or solution, the former containing either $\frac{1}{16}$ of a grain or $\frac{1}{60}$; the solution contains $\frac{1}{60}$ of a grain in 50 drops. It is a convenient method of ordering digitalis, and is, no doubt, applicable in cases where the full digitalis effect is not necessarily required. For the more severe disorder, it is undoubtedly wiser to utilize a tablet standardized physiologically, a careful watch being kept upon the reactions of the patient. Thus the rate of the heart at the apex must not fall below 60, and the possibility of heart block must be born in mind. Coupling of the beats, caused by a sequence of ventricular systoles is an indication for the immediate cessation of the drug. Nausea or vomiting may also demand cessation unless caused by congestion of the stomach, which is often the case if it occurs shortly after the commencement of treatment.

QUINIDINE.—This alkaloid of cinchona has come into use for the treatment of auricular fibrillation. As long ago as 1914 temporary arrest of auricular fibrillation had been brought about by this drug. In 1918

¹ 'Recent Advances in Medicine,' p. 269

Frey obtained a normal rhythm in 50 per cent of his series of twenty two cases

With reference to the type of case in which quinidine should be employed Cotton says that it is of greatest value in cases of auricular fibrillation when there is no cardiac enlargement and no valvular disease Furthermore its use is recommended in the *infective* group of cases rather than in the *degenerative* It is sometimes successful in cases of flutter (in which the use of digitalis has converted the case to one of fibrillation but in which the normal sinus rhythm is not restored on discontinuing the drug)

It is stated that in about 50 per cent of cases of auricular fibrillation quinidine is able to restore normal rhythm

STROPHANTHUS —Strophanthus like digitalis is a cardiac tonic and diuretic but its action is more prompt On account of its greater speed of action it is sometimes administered hypodermically in doses of $\frac{1}{800}$ to $\frac{1}{1000}$ of a grain A moderate dose by the mouth is from 1 to 4 milligrams daily It should not be given where there is high blood pressure or degenerative changes in the kidneys

OUABAIN is of the same natural order as strophanthus It is utilized in some cases of cardiac insufficiency where for any reason digitalis is not suitable It can be obtained in tablets or ampoules for intramuscular injection

MERCURY —Mercury has been called the sovereign remedy for all evils, and if we include its salts it surely

goes very near to justifying the title. The metal itself is the remedy *par excellence* in syphilis, in the earlier stages of which it has what we must assume to be a specific effect. It is also well to remember that in the so called tertiary manifestations affecting the nervous system mercury will often prove successful when iodide of potassium proves fruitless. Of the methods of exhibiting the drug in syphilis nothing can compare with the inunction method as practised at Aix la Chapelle. A full account of this method and its accessories was given in a paper read by Dr. Læven of Aix la Chapelle, and was published in the *Journal of Balneology and Climatology*. Space does not permit me to enter into any detail concerning the method, but I should like to point out that it is one which any careful practitioner can carry out, without sending the patient either to Aachen or to any of the numerous health resorts in this country where the treatment can be obtained. It is so superior to any other means of introducing mercury into the system, so full of advantages, and so free from risks, that I do not hesitate to say that he who neglects it is not doing his best for his patient.

The expression 'alterative,' which was applied to mercury by our forefathers, must still be employed to denote a quality in the drug which we all recognize, but which in the present state of our knowledge we are unable to explain. We know that it is a germicide, that it is a cholagogue, that it is an absorbent, but we know, too, that it is something else which we cannot

place in any category. It is to that something else that we appeal when we prescribe small doses of grey powder for a bottle fed baby who, though being fed on lines which are quite satisfactory, is nevertheless not thriving. We may feel certain that there is no syphilitic taint, and yet we place absolute reliance upon the drug to bring about an alteration for the better in the child's nutritive process. It is to that same something which we appeal when we prescribe mercury for a patient who, though not ill, yet exhibits undoubted signs of a resisting power which is below the normal level. And the curious thing is that the appeal is so seldom made in vain. They are fond in France of using the terms 'parasyphilitic' and 'paratuberculous' to describe conditions which are admittedly neither syphilitic nor tuberculous, but which are supposed to bear some relationship to these infections, and in both the favourite remedy would appear to be mercury. It would seem as if the vital soil of some individuals occasionally required digging over, as it were, with fresh material, in order to bring their powers of resistance up to the normal level, and there can be no doubt that that fresh material is more abundantly supplied by mercury than by anything else.

Of the salts of mercury, that which is probably the most highly esteemed is calomel. In large doses—*i.e.*, from 5 grains upwards—it is a very drastic cathartic, in moderate doses—*i.e.*, from $\frac{1}{2}$ grain to 2 grains—it is a cholagogue, and in small doses—*i.e.*, from $\frac{1}{4}$ to $\frac{1}{2}$ grain—it is an intestinal antiseptic. In small doses

it acts as a cathartic if it is given three times daily, and continued for four or five days. This method has many advantages over that of the single large dose, inasmuch as it allows the drug time to exercise its sedative influence—an influence which, though very marked, is seldom spoken of. In some cases the single large dose is essential—in delirium tremens, for example. The late Sir George Macleod used to declare that a full dose of calomel was infinitely the best treatment in this condition, and he seldom employed any other. Dr Murray advocates the use of what most people would regard as enormous doses in acute mania, and he tells of some cases in which he has given as much as 30 grains of calomel to a maniacal patient with the happiest results. One case, 'after much profuse vomiting and purging, became as quiet as a child, and fell into a sound sleep, to awake in a perfectly calm frame of mind.' There is much shrewd practical common sense in this method, and it might be remembered with great advantage in emergencies similar to those which the author relates.

In minute doses calomel is of the greatest value in typhoid fever. It promotes intestinal antiseptis, prevents borborygmi, and renders the stools less offensive. Care should be taken in giving it, however, lest it should accumulate (as it sometimes does), and then exercise the effect of a single large dose. One eighth grain three times a day is a sufficient dose, and this should not be continued for more than three days without an interval. It is usefully combined with

3 grains of thymol made into a pill with soap powder and a little spirit. If the bowels are thoroughly cleared at the outset by a dose of 2 grains of calomel, and if this pill is given cautiously during the first fortnight, the fever will generally take a benign course. Calomel, in doses of $\frac{1}{16}$ grain hourly until the bowels move freely, is a most excellent measure in disordered states in children and in the obscure upsets of adults. In doses of $\frac{1}{2}$ grain before dinner daily for a few days it is useful in mild occasional constipation, where brisk purgation is to be avoided.

Another deservedly popular preparation of mercury is *hydrargyrum cum creta*. It is as has already been mentioned, probably the best alterative for children, especially when combined with rhubarb and soda, as in the following

R	Hydrarg c cret	gr $\frac{1}{2}$
	Pulv rhei	gr 1
	Soda bicarb	grs iii
M	Ft pulv Sig Nocte maneque	

Dr Murray speaks highly of the following powder in the treatment of catarrhal jaundice

R	Hydrarg c cret	gr 1
	Pulv cret	gr 1 vel grs ii
M	Ft pil Sig Ter die sumend	

In the treatment of catarrhal jaundice—even in the treatment of that vague condition known as biliousness—it is worth while to try some of the more modern methods in which mercury finds no part. For example,

bile salts are reputed to stimulate the flow of bile. A pill such as *pil. cholelith*, which contains acid sodium oleate, with sodium salicylate, phenolphthalein and menthol, is an admirable combination for this purpose. It increases the hepatic secretion and encourages the flow of bile.

While biliary stasis is under discussion, it may be desirable to refer briefly to the treatment of infective conditions of the gall bladder and biliary passages. Here we may find use from a chemical such as urotropine, or, to give it its full name, hexamethylene-tetramine. This drug is known principally for its action as a urinary antiseptic; and its action as an antiseptic in an acid medium appears to be established. It has been shown by Knott that hexamine acts as a biliary antiseptic in spite of alkalinity of the bowel. Small doses, say 2 drachms, of a saturated solution of magnesium sulphate, taken fasting, have also been shown very decidedly to stimulate the flow of bile.

ARSENIC.—Arsenic was at one time regarded as almost a specific in most chronic cutaneous disorders, but experience has since shown that it is liable to be a double-edged weapon, which should be employed with great caution, inasmuch as it has an undoubted tendency to convert a chronic disorder into an acute inflammatory condition. In suitable doses it is a very useful general tonic, and in very small doses (1 to 2 minims of Fowler's Solution) it is an excellent tonic to the digestive organs, more especially the stomach. It is very efficacious in vomiting, especially the morning

vomiting of drunkards and those suffering from other forms of chronic irritation. It is probably the most reliable remedy for henteric diarrhoea in children.

As a general tonic it has a special value in functional affections of the nervous system, especially when combined with *nux vomica*. I have found small doses of both to be more efficacious and better tolerated than large ones, a good combination being a pill containing $\frac{1}{6}$ grain of arsenious acid and $\frac{1}{6}$ grain of extract of *nux vomica*, three times daily after food. This pill should not be given in organic disease of the nervous system, because even the small quantity of *nux vomica* it contains is calculated to do harm.

As a digestive tonic, arsenic acts admirably when combined with citrate of iron and ammonia in those anæmic and chlorotic patients, (and they are very numerous), who cannot take the stronger preparations of iron, such as the sulphate and the perchloride. A mistake which is very often made is to give chlorotics and anæmics these stronger preparations in the first instance, a very common and a very futile combination being *magnesium sulphate* and *iron sulphate*. It has several times fallen to my lot to see a patient, who had failed to make any progress whatever with a prolonged trial of this, improve by leaps and bounds as soon as the following was substituted:

R	Ferri ammon cit	grs x
	Liq bismuth ammon cit	℥ii
	Liq Fowleri	℥v
	Aquam	ad ℥ss
	M S g Ter in die post cib	

I do not at all underrate the value of purgatives in the treatment of this condition, but there is no special reason for including them in the mixture. They may be given independently in the form of a morning draught, or some other laxative, such as aloes or cascara, may be employed. Aloes is said to enhance the action of iron, and there certainly seems to be good ground for this opinion.

The treatment of chorea by large doses of arsenic was invented by an unqualified practitioner, who, on his death bed, disclosed the secret of his success to Dr Murray. The secret was this 'that Fowler's Solution, in 15 to 20 drop doses, might generally be given to children from ten years old upwards for a few days without disturbing the stomach, and that so given it was an almost infallible cure for chorea within a week.' Dr Murray's own observations confirmed the value of the drug so given, but he insists that two rules should be observed. The one is that the minimum dose should be 15 drops of Fowler's Solution, and the other, that the treatment should not be continued for more than one week.

A trial extending over several years enables me to speak with some assurance as to the efficacy of this method. It does good in the large majority of the cases, in some instances it is *brilliantly successful*, and in a few it fails completely. But I do not agree that it is essential that the treatment should be stopped on the eighth day. I have, indeed, found that to do this is often to lay down the weapon just as it commences to

be operative, that it is, in fact, during the second week of large doses that the symptoms yield. It is, of course, necessary to call the parents' attention to signs of intolerance during this second week. I have found, further, that absolute rest in bed, combined with a diet from which fish, flesh, and fowl are rigidly excluded, greatly increases the prospect of cure by this, or, indeed, by any other method. Finally, I have found that the addition to the mixture of large doses (say 20 minims to 1 drachm or more) of liquid extract of ergot, as suggested by Dr Eustace Smith,¹ notably increases the percentage of cures.²

There are, however, some cases which obtain no benefit whatever from arsenic thus given and although I have endeavoured to classify them, I am unable to suggest any point which, in examining a case, would enable us to suspect beforehand that it was one which would prove intractable to arsenic. One very practical clinical point, however, is that the cases which fail to respond to arsenic will nearly always (invariably, in my experience) react to trional. Trional will fail in a very large number of cases where, under circumstances which are identical as regards rest and diet, arsenic will succeed, but I have not yet come across a case where, arsenic having been found wanting, trional has failed to produce the most satisfactory results.

In dealing with chorea, my custom, therefore, is first

¹ *British Medical Journal*, July 18, 1903

² *Vide* 'Ergot and Arsenic in Choreia,' by Clive Ravière, *British Medical Journal*, February 25, 1905

of all to insist upon the recumbent posture and upon a suitable diet. I then give a mild cathartic and immediately begin the arsenic treatment. At the end of a week I am guided by *circumstances as to whether* the arsenic is to be continued for another week, or trional (10 to 15 grains), three or four times a day, substituted. Very few disappointments will, I believe, await anyone who follows the same line. Arsenic is the most reliable remedy in habit spasm.

Jonathan Hutchison¹ regards arsenic as a specific in herpes of the lips and genitals—when recurrent Herpes zoster is often provoked by arsenic, but as in zoster recurrence is very unusual, the drug does not act. It is the element of recurrence which constitutes the indication for its use.

In conformity, it is to be presumed, with its supposed beneficial effect in all affections of the skin, arsenic is sometimes given by the mouth for the cure of chilblains. There is no objection to this, but I cannot say that I have ever seen much benefit from its use. This troublesome affection is generally best treated by calcium chloride internally (*q v*), combined with local measures. The limb should have an extra wrap worn upon it, so as to encourage the circulation of blood in the part. The patient should be warned against subjecting those parts which show a tendency to this form of stasis to sudden alternations of heat and cold, because, for some unknown reason, these alternations seem to be much more active in producing chilblains than cold.

¹ *British Medical Journal*, July 30, 1897

alone Tight boots and tight gloves must be forbidden As a local application, nothing can compare with the unguentum iodi (B P), especially when vigorous rubbing is employed It stops the intolerable itching and causes the subsidence of the inflammatory process For broken chilblains, touching with sulphate of copper and dressing with unguentum resinæ will rapidly effect a cure For checking the tendency to chilblains—to forestall them, that is—iron, arsenic, and cod liver oil are all useful, but calcium chloride is invaluable Exposure of the parts to radiant heat will not only assist in checking the tendency, it will also bring about absorption of the unsightly swellings which chilblains so frequently occasion Von Buiz (*Therap der Gegenwart*) gives the following as an infallible remedy for chilblains

R	Calciat chlorinat (B P)	℥i
	Paraffin	℥iix
M	Ft ungt Sig To be well rubbed in at night	

The effect of calcium chloride taken by the mouth is very much enhanced by the exhibition of parathyroid extract in doses of $\frac{1}{10}$ to $\frac{1}{15}$ grain Another very useful adjunct is nitroglycerine in small doses

BISMUTH.—In connection with the internal administration of this most excellent gastro-intestinal sedative, most of what is necessary has been said in Chapter II. I return to the subject here to emphasize one or two points in relation thereto It was at one time believed

that the value of the powder form of the drug in cases of gastric ulcer was due to a mechanical action. The powder was supposed to spread itself out on the floor of the ulcer, and thus afford a protection against the action of irritants. Although there seems to be very little to support this theory, I am quite of opinion that the solid forms are preferable to the liquid, and that of these the subnitrate is infinitely the most useful and reliable. I have always found it superior both to the oxide and carbonate. The liquor bismuth et ammonii citratis is the best of the liquid forms, and, as it is practically tasteless, it can be so combined as to make an agreeable mixture. Bismuth in any form taken over long periods of time is liable to cause (1) a garlic odour in the breath, (2) increased pungency of the axillary secretion, and (3) pruritus and irritation in the vicinity of the anus. These are all very inconvenient to the patient, and the drug should be stopped as soon as any of them arise.

Bismuth is also valuable when used externally. Sir Thomas McCall Anderson speaks in the highest terms of the following ointment as a sedative in eczematous and other irritating eruptions, and my own experience fully bears out his recommendation.

R	Bismuthi oxid	ʒii
	Acid. oleic	ʒii
	Ceræ alb	ʒvi
	Vaselin	ʒii ʒii.
	Ol rosæ	℥i.

M. Ft ungt

Another soothing combination containing bismuth is the following cream

R	Zinci oxid	}	℥ss
	Bismuthi carb		
	Glycerin carbol		ʒii
	Glycerin amyl		ʒ
	Lan calcis		ʒi

M. Ft cremor

A useful lotion of similar composition is

R	Bismuthi carb	}	℥ss
	Calaminæ		
	Mucilag tragacanth		
	Aquæ calcis		ʒiʒ
	Aquam		ad ʒi

M. Ft lotio

LAXATIVES AND PURGATIVES—The older school depended perhaps somewhat unduly for their stimulation of peristalsis upon vegetable purgatives. While these undoubtedly have their uses the more modern method of treating intestinal stasis consists essentially in the re-education of the intestinal movements rather than upon dependence on an irritating purge. The dinner pill so popular in the last century has come to be regarded as not entirely free from serious drawbacks.

The introduction of the Röntgen rays has enabled examinations of the movements of the stomach and intestines to be undertaken during life. Spastic constipation—which is shown to consist of a series of spasms in the course of the large bowel—must be adversely affected by the regular ingestion of irritating purges.

The object of treatment should be to re-establish the normal action of the bowel, and this can only be achieved by the removal of any spasm of the colon. Purified paraffin has helped materially in the achievement of this object. This and other lubricants prevent the accumulation of faeces in such areas as the hepatic and splenic flexures and the iliac and pelvic colons.

Another method of easing the work of the intestinal musculature is the provision of bulk to the bowel contents. For example, some substance which swells, when it comes in contact with the fluid contents of the intestines, can be taken after food. Of these, agar agar, psyllium seeds, Normacol—to mention only a few—make it easier for the bowel to squeeze on its contents. It is, of course, desirable to remove any colonic spasm before adding materially to the bulk which has to pass the narrow areas. This can be done in many instances by the administration of an anti-spasmodic, such as belladonna.

The occasional use of a well-chosen laxative—and the name of these is legion—can have but little objection, but the regular use of cathartics can only, in the end, lead to an increase of the trouble. Hence the well known fact that purges, *per se*, require an increase in their dosage if they are continued over any length of time.

DIGESTIVE AIDS In addition to some of the remedies to which we have already referred, which may be used for their action upon the functions of digestion,

reference may be made here to certain aids to digestion of more recent discovery

While sodium bicarbonate has been utilized by many generations for its neutralizing powers upon gastric hyperacidity, it has certain manifest disadvantages. Its neutralizing power is limited, it gives off carbon dioxide, causing distension and produces a marked stimulus of gastric secretion as a secondary action.

To overcome these disadvantages several different combinations of drugs have been tried. In the treatment of gastric ulcer, 10 grains of sodium citrate dissolved in 2 drachms of emulsion magnesie (which latter contains 10 grains of oxide of magnesia) has been found to be very efficient. This combination would be useful wherever it is desired to reduce the secretion of gastric juice. A powder containing magnesium carbonate with some bismuth achieves much the same purpose, and the magnesium in both instances has a mild laxative action. A variety of powders the basis of which consists of these chemical salts, are on the market, and find their utility mainly where such symptoms as heartburn, water brash, and acid eructations are concerned.

The intensive alkaline treatment of gastric and duodenal ulcer is based upon the power which these chemicals have of neutralizing gastric activity.

From what has just been said, it will be clear that small doses of sodium bicarbonate, given before a meal, are likely to increase gastric secretion after the food is taken, and thus to be useful for hypo-acidity. This

condition can also, of course, be treated by the exhibition of dilute hydrochloric acid. But if this method is selected the dose must be considerably larger than used formerly to be given. For example, 1 drachm of acid hydrochlor dil in 4 ozs of water is not too large a dose to give. In pernicious anæmia such doses as these have been recommended, but it must be carefully borne in mind that the dilution must never be less than that stated.

No account of newer drugs would be complete without a reference to the use of liver and stomach substances in medicine.

This is not the place to describe in detail either the work which led to the establishment of liver as a therapeutic agent for anæmia or of the many preparations which are now upon the market. It may, however, be permissible to refer to the work of Castle upon pernicious anæmia. This observer and his colleagues showed that the juice of the healthy stomach contains an unknown ingredient which is able to produce as marked an improvement in pernicious anæmia as that which follows the use of liver extract. It is not believed that this substance is related either to HCl or pepsin.

The importance of these researches lies in the fact that it shows that pernicious anæmia is a stomach-deficiency disease, and not necessarily the result of intestinal toxæmia consequent upon deficient hydrochloric acid.

Various preparations of hog's stomach (such as Ventriculin) are upon the market, and not a few cases

have now been described where the patient reacted favourably to the use of such a preparation, although liver therapy had proved a failure

From these few scattered drugs, it will be seen that the practising physician has now two groups from which to choose. The first of these consists of the old established and tried remedies, the second, of the newer discoveries, which, although to some extent replacing the old, do not by any means entirely cast them forth into outer darkness. Before leaving the subject of drugs and their uses, it may be desirable to say a few words about another branch of therapeutics which has come into prominence in the last few years—namely, treatment by vaccines, sera, and shock therapy.

Vaccine therapy has been said 'to exploit in the interest of infected tissues the unexercised immunized capacities of the uninfected tissues'¹—in other words to stimulate the chemical machinery of the patient to elaborate the required specifically bacterio tropic substances.

Antitoxin treatment consists in the utilization of the antitoxins of an animal whose blood is immune to the particular organism. The antitoxin contained in this animal's blood serum combines with the toxin in the blood and tissue of the sick person. By so doing they neutralize the power of the toxins and thus he recovers.

Immunity may be acquired naturally or artificially. A natural immunity implies that the disease does not

¹ 'Extra Pharmacopœia,' 10th edition, vol. 1, p. 896.

commonly occur in man, although it occurs in certain animals and *vice versa*. For example, rats and dogs are immune to anthrax. Natives of certain countries may develop an immunity to a particular disease which natives of other countries are unable to do. Acquired immunity, on the other hand, is the result of an attack of a particular disease. Artificial immunity can be either active or passive. Pasteur showed that injections of the organism in chicken cholera protected the inoculated fowl against lethal doses of the virulent bacilli. Von Behring discovered that the 'serum of actively immunized animals, when transferred to other animals, conferred immunity on the latter, and this process is termed passive immunity.'¹

When we come to consider these observations from the therapeutic standpoint, we find that the remedies available in immune therapy consist of immune sera and bacterial vaccines. Among the former the most strikingly successful is anti-diphtheria serum, and this is universally regarded as being of the greatest help in combating this disease. There are, of course, many other sera available, but opinion is divided as to the value of some. Various polyvalent sera have been utilized, so has a univalent serum of streptococci.

The utilization of vaccines has become widespread. The vaccine in common use is a simple suspension of the dead microbe in normal salt solution. The dose of vaccine varies widely both with the nature of the

¹ 'Text Book and Practice of Medicine,' edited by F. W. Price, p. 18.

organism and the disease and its treatment. In the Extra Pharmacopœia will be found a table of vaccines arranged alphabetically; and here is given the initial and final dose of the various vaccines, both from the prophylactic and therapeutic standpoint. It must be understood that the dosage for prevention and treatment are widely different.

In addition to the ordinary vaccine, there are some other varieties in use. Sensitized vaccines are suspensions of organisms which have been treated with antiserum, so that certain antibodies in the serum enter into close combination with the bacteria. De-toxicated vaccines have been evolved and are made by treating certain bacteria with an alkaline solvent, 'whereby the stroma or bacterial protoplasm and the toxic endotoxin are dissolved'.¹

'Phylacogens' consist of substances in which the cell body has been prepared for easy assimilation by the tissues into which it is injected.

'Antibacsyn' is a portion of the globulin content of normal horse serum, extracted by a salt containing calcium, magnesium, and silica, the exact chemical formula of which is, as yet, not known.

The rationale of its application is stated to be as follows. The human body obviously contains a natural substance which protects it against infective organisms, otherwise every microbic disease would be fatal. This protective substance has been isolated from the blood serum. It consists of a protein complex which is

¹ 'The Extra Pharmacopœia,' p. 901

present in large quantities in the plasma. The major portion of it, however, is locked up with the microorganisms which the individual has already defeated. The whole constitutes the various anti bodies of the blood. It therefore follows that protection may be specific or non specific. When it is specific, it is so in virtue of the presence of unfixed anti body. It is possible to remove the whole of the specific anti body from the serum outside the body, and to prepare therefrom large quantities of freed unfixed anti body for reinjection. To this unfixed anti body the name Antibacsyn has been given.

The therapeutic uses of antibacsyn thus obviously cover a very wide field. The special indications which experience has so far selected are as follows: coryza, bronchitis, measles, scarlet fever, and gonorrhœa, all of which it aborts if given at the outset.

It is exceedingly difficult in a short space to comment helpfully upon such a large subject as vaccine therapy. Moreover, opinions vary widely on the success of this method of treatment. Again, there are so many organisms from which vaccines can be prepared that the wideness of the subject is increased still further. Vaccines are used prophylactically—an example of this is the prevention of the common cold—and therapeutically in the treatment of disease. The following paragraph seems to summarize the position.

‘The application of Vaccine Therapy is limited *first* by the fact that the capacity for antibacterial response in the body is limited, *secondly* by the existence of

individual peculiarities of disease manifestations, *thirdly* by the fact that we are still in the dark as to the means to be adopted to bring out the highest degree of antibacterial response. The body fluids containing anti-bacterial substances must have free access to the focus of infection—*cf* the difficulties in tuberculosis and typhoid carriers (in which latter the bacilli are multiplying on free surfaces of the body). There are no hard-and-fast rules regarding dosage and intervals.¹

¹ 'The Extra Pharmacopœia,' 19th edition, vol 1, p 903

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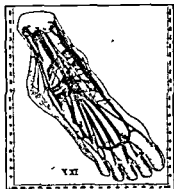
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